

CTO

The Magazine for Information Executives

STRATEGIC PLANNING:
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THE GM CORD

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Guess What, Jack... You're Fired!

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PLUS

10 RULES FOR TERMINATION

A Template for that Last
Conversation



*Starting with "Guess what?" is wrong.

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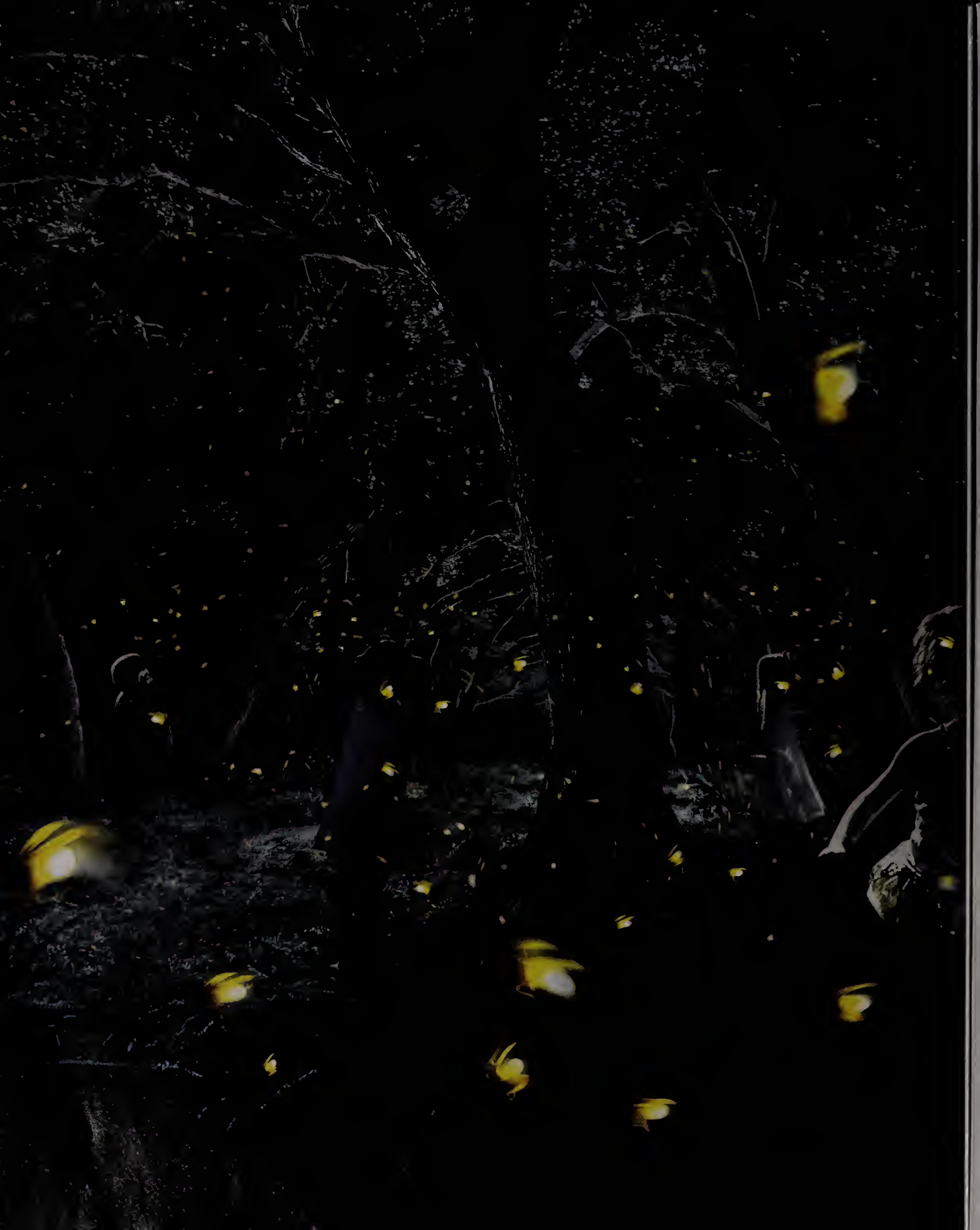
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Cover photo by Fernald/Gray

A close-up, high-contrast photograph of a woman's face, focusing on her eyes and lips. The top half shows her eyes looking directly at the camera, and the bottom half shows her lips slightly parted. The image is split horizontally by a black band containing the main text.

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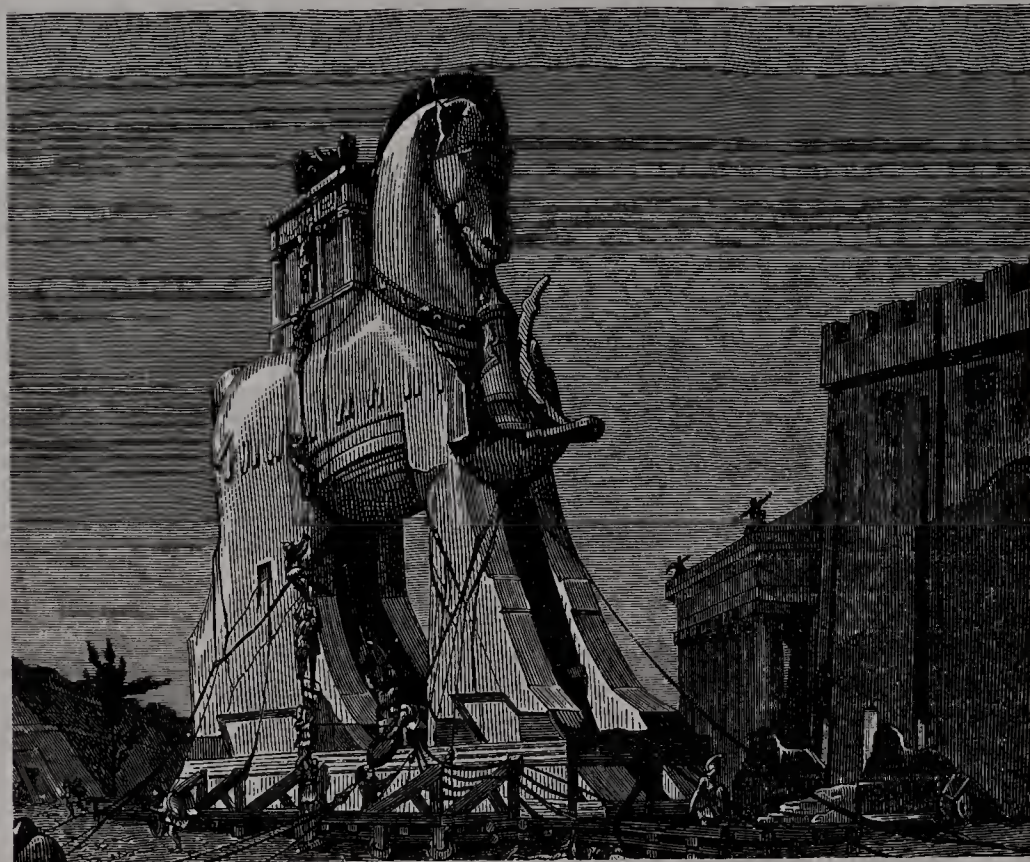


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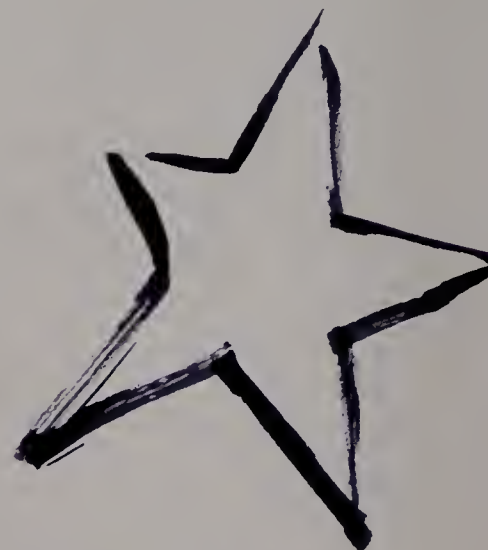
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ENTERPRISE VALUE AWARDS
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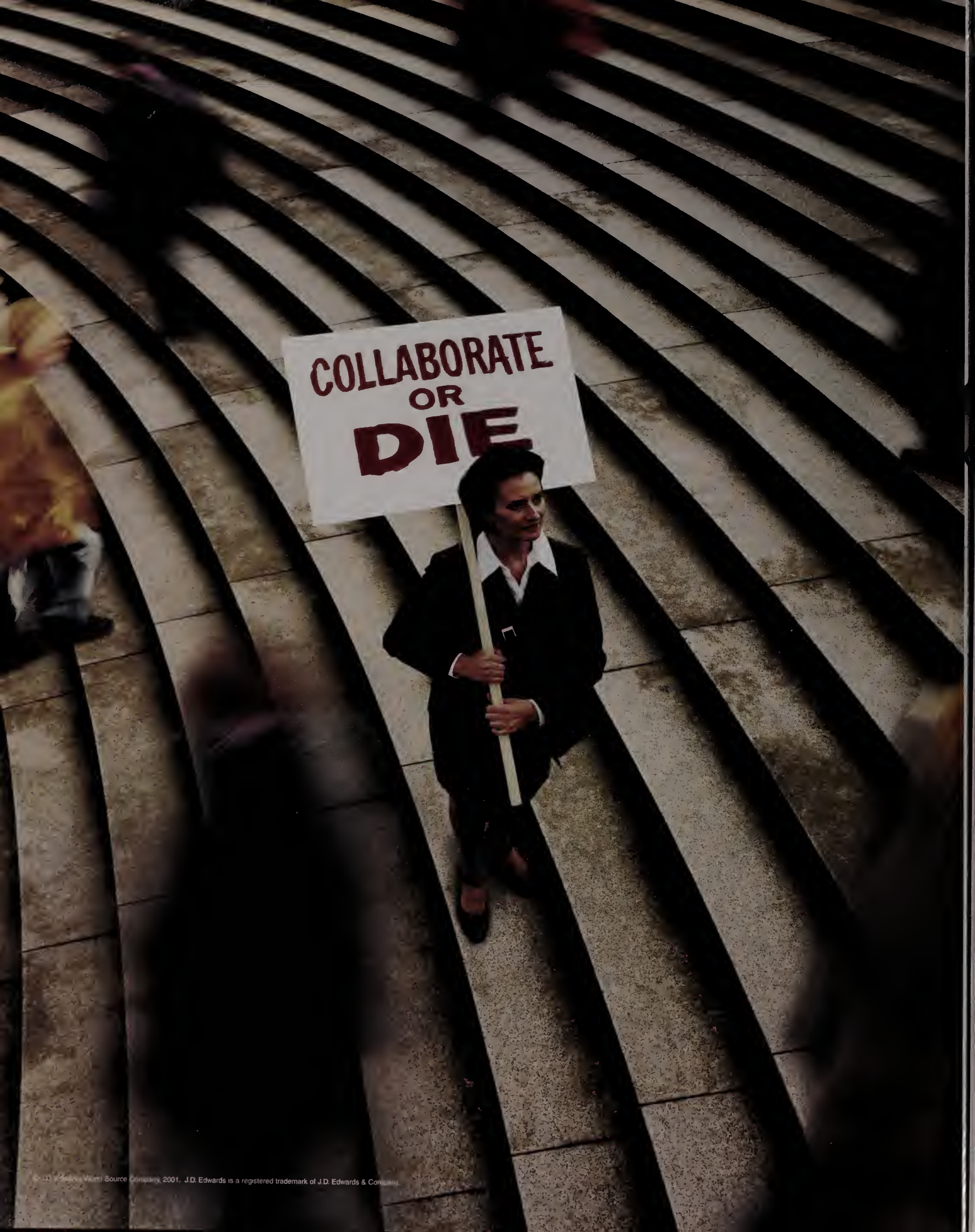
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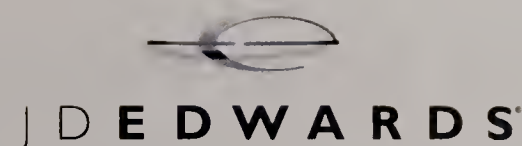
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A woman in a dark business suit and white shirt is walking down a wide set of stone steps. She is holding a large white sign with the words "COLLABORATE OR DIE" in bold, dark letters. The steps are made of light-colored stone and are flanked by dark, shadowed areas. The woman is looking towards the camera with a slight smile. The overall tone of the image is serious and provocative.

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Opinion Online



Heller

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“My experience with CIOs is that they don't have a clue. They are put in their position by managers who think that a 'good' manager can manage anything, and they have little or no experience at the grunt level of IT.”

—A reader responding to a Sound Off question:
“What Would You Ask a Room Full of CIOs?”
comment.cio.com/soundoff/022801.html



 Greetings from the Internet  

>> dude,

i ' m l o s t ,

i ' m s o

l o s t . . .

you have no **idea**

how

l o s t

i a m .

i a m .

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Don Buskard

Sr. Vice President & CTO, AXA

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InBox

Reader Feedback

CHOOSING SIDES ON ALIGNMENT

I came away from reading "Closing the Gap" [Dec. 15, 2000/Jan. 1, 2001] feeling that maybe the IT profession has once again created a mess for itself. As a CIO who did not start out my career in IT, I have always been somewhat mystified by how the profession feels so put upon by our business partners that we have to (pick one or all):

- A. Invent the CIO for ourselves—and CTO and CPO.
- B. Cry poor about funding when so many of our expenditures are nonvalue-added.
- C. Insist IT be treated as strategic, when we can't keep the lights on.
- D. Create issues such as alignment to rationalize our performance or lack thereof.

While this is admittedly an oversimplification, I fail to see why we just don't go about the business at hand. I am reminded about something I once read (maybe from Tom Peters) about corporate vision statements to the effect that "if you feel the need for one, you have already lost." The issue of alignment strikes the same chord with me. If we

devoted our time and energy to being businesspeople who deliver results to our business partners, on time, within budget, with the functionality they needed, we would not have to talk about alignment—it would already be there.

John Nordin
VP and CIO for Information
Technology
A.M. Castle & Co.
Franklin Park, Ill.
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I feel for my brother and sister CIOs who are still struggling with alignment. While I have seen this struggle with my own eyes for years, I don't believe alignment should still be an issue.

Call it luck or whatever, but I've followed a simple formula that has minimized business-IS polarity to what I would consider differences no greater than those in any other business function. This formula is aggressive partnering with business units; complete and thorough rationalization of projects (value proposition); a contempo-

rary IT organizational model and careful selection and retention of IT professionals; and finally, execution and life-long support.

If CIOs use this formula and it doesn't work, they need to face one of two realities: Either the companies they represent don't get it and likely will not until they leave (hopefully the companies will figure it out eventually), or the CIOs themselves don't get

it and likely will not, and it's time for them to change careers.

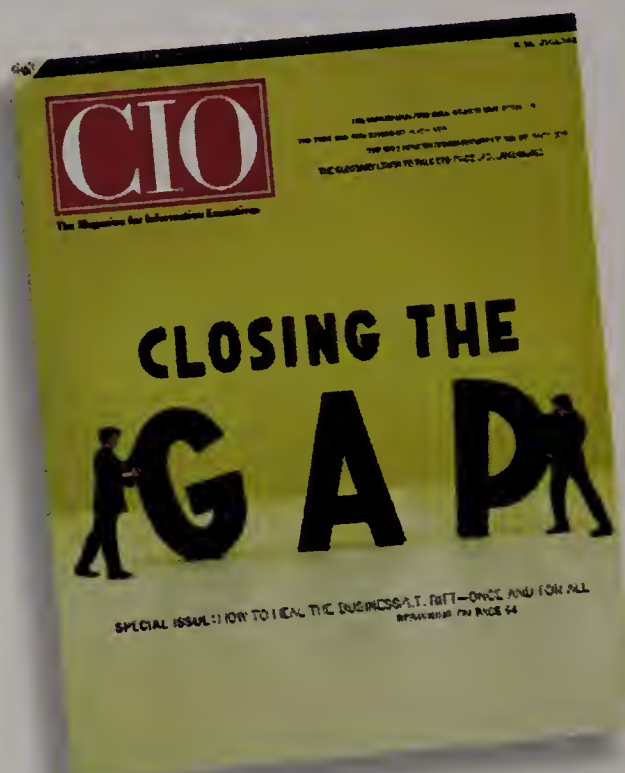
We CIOs need to recognize that we are part of the business and therefore must rise to that occasion. CIO needs to move on and quit fueling this over-discussed introspection.

John A. Zarb
Vice President and CIO
Libbey Inc.
Toledo, Ohio
zarbja@libbey.com

I felt like a spy reading "Closing the Gap." I got a tremendous amount of insight into the issue of alignment from the IT side that will help me on the marketing side.

There are three partners in the process of alignment: the IT people who have the insight into the technology that best supports ERP, CRM, knowledge management and so on; the business-side people who know the applications of these new processes; and the business-side people who own the applications being replaced.

My experience has been that the owners of the old application are frequently excluded from discussions of strategy and budgeting. As a result, transition needs are not addressed, vital expertise is lost and internal friction emerges. Senior executives play a big part in the exclusion by directing IS and the owners of the new application to go fast and not let the old ways slow them down. (The [Trendlines] cartoon "Close Encounters of the Worst Kind" did a good job identifying the characteristics of these senior execs.) Too frequently the result is that the project goes fast right into a wall, when it is discovered that



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Is Server Consolidation the Answer?

Senior executives are demanding information systems that position the company for e-business growth. Users are demanding service levels, reliability and response times that meet e-business requirements.

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For a growing number of organizations, the answer is server consolidation. The benefits of a well-crafted consolidation strategy are many, including:

- Higher service levels
- Positioning for IT growth
- Better system administration
- More efficient use of IT labor

Consolidation can involve placing all servers in one room for more efficient administration, consolidation of common processes and management or replacing several small servers with larger ones, like the Unisys ES7000. In all cases, the best solutions are services-oriented.

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InBox

the core information isn't even collected or is stored in an old mainframe that is impossible to access economically or, even worse, in 30 different, incompatible PCs.

John R. Murtagh
St. Clair Shores, Mich.
murtaghs@yahoo.com

From my research on "IT-dependent" industries in the United States and Australia, there are a number of factors that need to be considered when determining whether a company could possibly achieve strategic alignment. While many analysts argue that the ability of an organization to achieve strategic alignment depends on a close relationship between the CEO and CIO, these other enablers and inhibitors are often ignored:

1. A workable definition of the term *strategic alignment*, specifically determined for the company. Senior executives from both the business and IS should determine which strategic alignment perspective is being pursued: Is IT driving business strategy? Is the business driving IT strategy? Is the IT strategy also the business strategy? The answers will be based on the type of market or industry the company exists in and the role IT will play within the company for the life cycle of the strategic plan. IS should clearly be involved in the strategic planning process.

2. Good IT leadership. In many organizations, one of the roles of the CIO is to reduce the cost of doing business. Good IT leaders do more than just reduce costs, however. They communicate the role of IT to the business so that business expectations can be set; they understand and can adapt to changing business needs; and they maintain a relationship with business executives.

3. The role of corporate culture. Corporate culture can impact the effectiveness of IT utilization. I've often heard "that's just the way it's done here," with no effort made for either IS or the business side to understand one another's role. This is particularly true for small to midsize enter-

prises that grow quickly or over time. Processes are often broken, and while both business and IS complain about one another, little is done to fix the process, widening the gap between them. Some of this gap is because of IS's own lack of role clarity: Some IT practitioners just want to sit in their cubes and code all day and make as little effort as possible to document changes. They want little or nothing to do with the business they serve. Although this approach may have worked in the 1980s, it will hinder the ability of an organization to achieve alignment.

These are just a few of the factors that can affect the ability of a company to achieve strategic alignment, but they demonstrate that the strategic alignment process within an organization is likely to be a slow and time-consuming process. Some may deem the quest for strategic alignment to be unfruitful because it takes several years for the results to be shown, but other analysts suggest that cultural changes within an organization may take up to five years to become visible. So, in answer to your question "Is it possible to achieve strategic alignment?" the answer is yes—if the organization determines all the factors that could potentially inhibit its ability to do so and is willing to execute an action plan that links into the organization's long-term strategic plan.

Kim Trevisan
E-Business Consultant
kim_trevisan@hotmail.com

CORRECTION

In "Measuring the ROI of Training" (Feb. 15, 2001), we misspelled the name of Mellon Financial Corp. CIO Allan Woods. We apologize for the error.

WHAT DO YOU THINK?

Send your thoughts and feedback to letters@cio.com. Letters may be edited for length or clarity.

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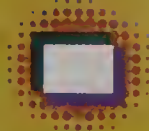
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trendlines

the **NEW** the **HOT** the **UNEXPECTED**

Edited by Sandy Kendall

CAREER

The O-Zone

By Angela Genusa

FEW WOMEN EVER make it into the “O-zone”—the positions of CEO, COO and CFO—at Fortune 500 companies. Even fewer become CIOs. Surely, you would think, the hue and cry for IT talent last year reached a pitch high enough to shatter any glass ceiling.

But in 2000, only a handful of females were CIOs or CTOs at Fortune 500 companies—36 to be exact. And the number of women CIOs leading technology companies in the elite Fortune 500? You can count them on one hand. According to a census by Catalyst, a nonprofit research and advisory organization working to advance women in business, there were just two: Patricia A. Cusick, CIO of Xerox, and Nancy Li, CTO of Computer Associates International (CAI). (Li has since become CEO of iCan-ASP, a CAI spinoff.)

Only five of the 56 tech companies on the Fortune list can boast that women form at least 25 percent of their chief officers: Hewlett-Packard, Pitney Bowes, SBC Communications, Unisys and US West. Thirteen Fortune 500 tech companies had no women corporate officers at all. Women also hold only 7 percent of line officer positions (those with profit-and-loss responsibility often leading to top spots) in IT companies.

Sheila Wellington, president of Catalyst, disdains the usual excuse—that fewer women are pursuing degrees in computer science and engineering. “Chief officers in these companies

need general executive management, marketing and sales skills, and there certainly are women out there with that kind of education and experience,” Wellington says. “About a third of all graduates from top business schools are women.”

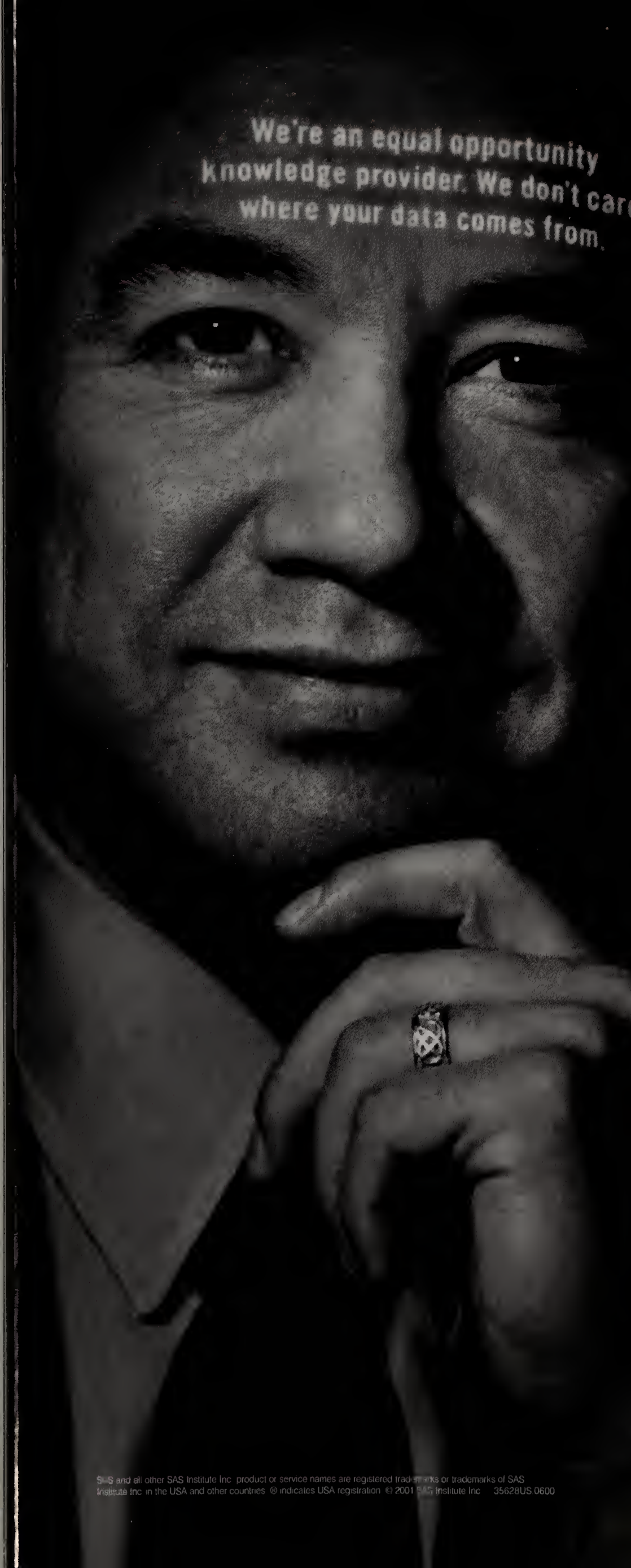
Wellington’s opinion is backed by a Korn-Ferry International paper that says a degree in computer science or engineering is not one of the top 10 CIO characteristics. According to Korn-Ferry, the foremost characteristic of a CIO is “a top-notch, highly effective business leader.”

To find out more about the Catalyst census, see www.catalystwomen.org.



Department of **BIG,** Scary Numbers

The Institute for the Future recently found that each day **THE AVERAGE WHITE COLLAR WORKER SENDS AND RECEIVES 190 MESSAGES VIA E-MAIL, TELEPHONE, FAX, POSTAL MAIL** and so on. It's not surprising that nearly three out of four of those workers say they feel overwhelmed by information overload. Source: Institute for the Future (www.iftf.org)



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W E B C O M M U N I T I E S

Beatlemania Again

WHO'S YOUR favorite Beatle? With the book *The Beatles Anthology* hitting number one on the best-seller list last year and sales of the band's album *1* making The Beatles the highest grossing pop band of 2000, that question is as pertinent as ever.

If you ask Excite.com, the most beloved Beatle is John, with 13,422,425 websites devoted to or mentioning him. George is second with 5,215,061 sites, and Paul comes in third with 4,707,969 “cute one” Web shrines. Only 254,870 webpages honor forever-undererrated Ringo.

For a small taste of some of the wackier or more interesting URLs, check out:

■ John Lennon's FBI files at www.lennonfbifiles.com. Learn exactly why Nixon and the Hooverites viewed him as a threat to national security.

■ Paul McCartney death sites, including www.angelfire.com/ct/scrmgdasys/index.html and catless.ncl.ac.uk/obituary/paul.html. These pages build arguments for an X-Files-esque conspiracy to cover up Sir Paul's rumored death.

■ Gorgeous George Harrison at www.geocities.com/hollywood/location/6910/george.htm. This site stands out because of its smart title.

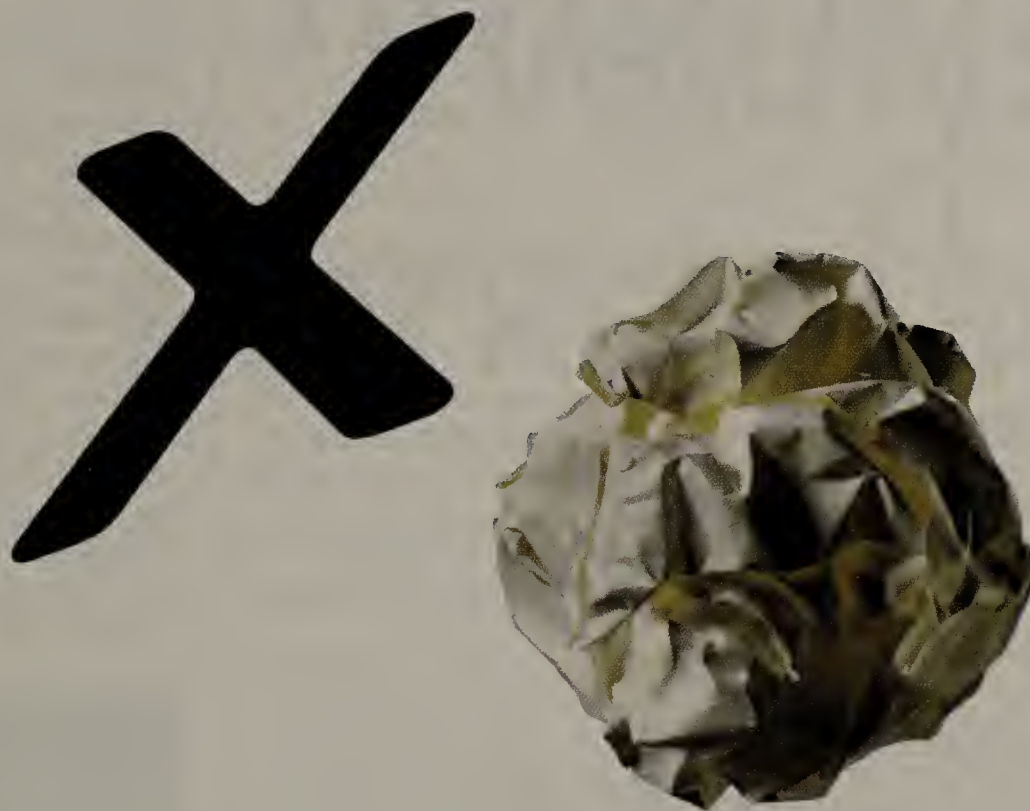
■ Leonid Gourov's site Ringo Starr, Live in Moscow at www.geocities.com/sunsetstrip/1170. Ringo was the first Beatle to play Russia, back in the former U.S.S.R. —Joe Sullivan



Maynard

BY DARRIN BELL AND THERON HEIR





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Washington Watch

Edited by Elana Varon

UCITA Backlash

THE UNIFORM Computer Information Transaction Act (UCITA) guidelines for software licenses were written by the National Conference of Commissioners on Uniform State Laws, a group of commercial law experts. They're supposed to help states craft uniform laws for how licenses are written so that vendors and customers don't have to invent contract language every time they ink a deal. But there's a growing backlash against UCITA as states move to adopt it.

The Society for Information Management said last month that UCITA "will be harmful to technology users." The group said UCITA gives unfair protections to vendors and would increase companies' software costs. An increasing number of opponents, many organized as the Sacramento, Calif.-based Americans for Fair Electronic Commerce Transactions (AFFECT), say UCITA forces CIOs to live with restrictive shrink-wrap agreements. For example, UCITA lets vendors give as little as 15 days notice before pulling out of a company if they think a customer is violating its contract.

States are starting to bow to consumer pressure. In February, Virginia legislators passed a UCITA amendment that compels vendors to give more notice before pulling out their software. As other states take up the rules this year, CIOs need to be vigilant, says **Bill Friel**, CIO with The Prudential Insurance Co. of America, whose company is an AFFECT member.

Friel worries that UCITA lets vendors incapacitate companies. If vendors supporting software suspect contract violations, they can disable the application. However, **Wayne Bennett**, a partner with

Bingham Dana in Boston who follows the controversy, says vendors have the right to do this now. UCITA makes vendors liable for any losses they cause customers if it turns out they're wrong, he says and concludes the rules "are not nearly as pro-vendor as CIOs believe."

In states that pass UCITA, its rules will become the default provisions in vendor contracts, but CIOs can override them. Though Friel concedes this won't work in every case, he says CIOs should refuse to buy software if vendors insist on the UCITA provisions. —*Lauren Capotosto*

Life, Liberty and Broadband

TO HEAR POLITICIANS TALK, broadband access is practically an American right. Deciding how to provide it is now a top agenda item for Congress, say policy watchers. It's hot because rural areas and inner cities think broadband will attract jobs and let locals share in future economic growth.

Lawmakers are pushing several related bills this session, including: **The Broadband Internet Access Act**. Sponsored by **Sen. John Rockefeller** (D-W.Va.) and **Rep. Phil English** (R-Pa.), it would give tax breaks to Internet service providers in rural and low-income areas. Jon Lindgren, spokesman for **Sen. Conrad Burns** (R-Mont.), who heads the Senate's Communications Subcommittee, says this bill will probably pass—tax cuts are popular. ISPs that deploy broadband services in underserved areas within five years would qualify for the benefit.

The Independent Telecommunications Consumer Enhancement Act. Sponsored by **Rep. Barbara Cubin** (R-Wyo.), this bill, approved by the House Energy and Commerce Committee in February, would exempt small telecom companies from many regulations, such as those requiring them to set up affiliates that provide paging or Internet services. Cubin thinks such requirements are expensive and hinder companies in rural markets from upgrading infrastructures.

Consumer advocates call these bills corporate welfare. **Mark Cooper**, director of research for the Consumer Federation of America in Washington, D.C., says eventually every region will have enough users to attract broadband services. But **Laura Marshall**, lobbying for rural economic development as a legisla-

tive representative for the Washington, D.C.-based National Association of Development Organizations, disagrees. She notes that in five southwest Colorado counties, lots of resi-



Rep. Barbara Cubin

dents have computers but there's poor broadband service. —*L. Capotosto*

Share your thoughts on broadband access with Senior Editor Elana Varon at evaron@cio.com. Editorial Assistant Lauren Capotosto can be reached at lcapotosto@cio.com.

"I strongly believe that financial institutions should not be allowed to pass along confidential customer, financial or medical information to others who wish to turn a profit from an individual's personal data."

—Sen. Bill Nelson (D-Fla.)

COMMERCE ONE

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 of the business Internet through
 B2B e-marketplace solutions.*

"AS THE EVENTS OF THE PAST SEVERAL YEARS clearly indicate, the impact of the Internet on the business world in the short term has been somewhat overrated," says Mark Hoffman, CEO of Commerce One®.

"But, on the other hand, the Internet's impact on business over the long term has been vastly underrated," he adds. "In fact, this technology is bringing about the most significant structural change in business since the industrial revolution. It's hard to realize the magnitude of the changes that will take place because we are just at the threshold of a new era."

Hoffman points out that the first movers in the Internet revolution were small, agile, upstart companies that attempted to out-flank the established brick-and-mortar behemoths. But for a variety of reasons, the dot-com party has quieted. Companies like Boeing, General Motors, Ford, DaimlerChrysler, Deutsche Telekom, BT



Illustration by Cameron Beck

and NTT are now moving deliberately and successfully into e-business.

The Internet allows these companies to solve traditional business problems in new ways—providing yet another round of business efficiency improvements. But it also allows these organizations to address a completely new set of business problems and opportunities, specifically those represented by the improvement in inter-entity communication and collaboration. It is this new class of solution that



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Accenture helps Exostar launch an e-marketplace for the aerospace and defense industry

Exostar is a new “electronic marketplace” spearheaded by four of the aerospace & defense industry’s leading players. Like many e-marketplaces, it is an independent business entity open to all suppliers and buyers within the industry.

However, Exostar is set apart by its commitment to collaboration and business value. In addition to gaining transactional efficiencies, Exostar constituents join forces on product design and program management, and work together to build supply chain synergies. Exostar’s e-marketplace is positioned as a productivity tool that also helps companies become more effective players in the \$200 billion global A&D industry.

Shift from point-to-point interactions

Goldman Sachs estimates that by 2004, 35 percent of all B2B transactions in the aerospace & defense industry will be done over the Internet. Four industry leaders—BAE Systems, Boeing, Lockheed Martin and Raytheon—quickly recognized the magnitude of such a shift: away from traditional point-to-point interactions and toward a new “eHub” model built around relationships. Each company thus began work on an independent exchange-development initiative. However, they soon recognized that the preferable course was to work together to create a single e-infrastructure that would be far more powerful and efficient.

Thus began an ambitious association among the industry’s leading competitors to create a better way of doing business through technology and collaboration. Assisted by Commerce One (technology provider) and Accenture (solution strategist/developer/integrator), BAE Systems, Boeing, Lockheed Martin and Raytheon set out to address A&D exchange needs in three key areas: procurement of non-production components, collaborative design of key A&D products

and systems, and acquisition of spares and maintenance items for airlines, aviation operators and the defense industry.

Accenture plays multifaceted role

From the outset, the agreed-upon strategy was that buying and selling would be part of a more comprehensive, collaborative environment. For this reason, Accenture’s involvement spanned numerous contexts, such as operations, buyer/partner integration, supplier adoption, marketplace creation, marketing and business development, product/service strategy and financial strategy.

To support these directions, a battery of operating committees—legal, HR, technical, government relations, PR and an overall executive steering committee—were formed, each of which was staffed by decision makers from the four companies. This structure helped to tee up and support rapid decision making.

From there, a highly potent organization with an exceptionally short gestation was born. From May 2000 to August 2000—120 days—the Accenture team successfully:

- Designed the company’s business architecture
- Created detailed designs of Exostar’s products and services
- Designed and built the first release of indirect procurement and auctions
- Designed and staffed the organization
- Launched the front and back office operations
- Launched the Exostar name and brand
- Launched the Exostar.com e-marketplace

In less than six months, Exostar evolved from a good idea to a unique e-company that helps members of the A&D community buy and sell more efficiently, and work together to design and move products more effectively.

offers the real potential of Internet-based business solutions by using the power of the Internet to forever change the nature of their business-to-business (B2B) relationships.

This new class of business solutions is called e-marketplace. An e-marketplace is an Internet-based business technology solution

focused on inter-entity business processes. It uses the Internet to optimize the communications and collaboration between the enterprise and its trading partners to reduce cycle times in such key areas as product design, inventory turnover, and time to market. Ultimately, e-marketplace solutions

are the key to realizing the still unrealized full profit potential of the Internet and B2B e-commerce.

Fast Growing World of B2B

“The previous 18 months have witnessed dramatic changes in the world of B2B e-commerce, which has become a reality for a few com-

panies and a possibility for nearly all companies,” notes Dr. Leo Lipis in a recent research report, *Worldwide E-Marketplace Services Market Forecast and Analysis*, issued by IDC, Framingham, Mass. “The number of e-marketplaces seeking to serve their needs has been increasing at a rate that makes one’s head spin.”

According to the IDC report, worldwide demand for e-marketplace services, pegged at \$2.5 billion in 1999, is expected to reach \$15.1 billion by 2004.

Other research firms are even more sanguine about B2B prospects: ActivMedia Research expects B2B sites to triple their revenues this year to reach \$134 billion. Jupiter Research predicts worldwide on-line B2B spending will reach \$137.2 billion by 2005. Other firms, such as Gartner Group and Goldman Sachs are estimating revenues in the low trillions in the next four to five years.

Even though the projections differ widely, depending on how the various research houses define the B2B marketplace and their number-crunching methodology, one message comes through loud and clear—the potential is enormous.

Responding to this potential, a new breed of Internet entrepreneurs are creating electronic marketplaces that are already beginning to have a major impact on companies ranging from the Fortune 500 to the smallest enterprises. This new business model is causing changes to ripple through the entire industry, transforming the organization’s relationship with its trading partners and customers as well as its internal pro-

cedures and IT infrastructure.

Perhaps the biggest hurdle companies have to overcome revolves around a shift in focus. IT solutions have traditionally looked inward, implementing applications such as ERP and supply chain planning systems to become more efficient and refine business

processes. But the new, e-marketplace approach allows companies to look beyond the enterprise and out into the marketplace with all its complexity, including widely varying corporate cultures, business processes and a wild hodgepodge of networking and IT environments. But despite these prob-

Tradecom.pt—Portugal’s First B2B E-commerce Company

Founded in February 2000 by Commerce One and three leading Portuguese corporations, Tradecom.pt’s mission was to lay the foundation for business-to-business e-commerce for Portugal.

According to Diogo Horta Costa, director of marketing and communications at Tradecom.pt, this seemingly revolutionary objective was a realistic extension of the extensive technological knowledge and market access of its parent companies, Portugal Telecom and leading financial institutions Banco Espirito Santo and Caixa Geral de Depositos.

“Portugal Telecom wanted to create a new venture to increase shareholder value,” said Horta Costa. “It made sense to begin with the business-to-business community in which they already participated and apply their expertise.”

Tradecom.pt’s e-commerce plan had four main objectives. First, the company wanted to create a horizontal e-marketplace that served business across multiple industries. Second, they wanted to recruit and support vertical e-marketplaces to serve specific industries. Third, they wanted to provide procurement solutions; both licensed and hosted, to potential e-marketplace buyers. And fourth, they wanted to become the market leader in Portugal, Brazil and Argentina.

Portugal Telecom selected Commerce One based on the comprehensive and global scope of the company’s solutions.

“Commerce One was the only total solutions provider,” stated Horta Costa. “The Commerce One MarketSite™ Operating Environment had the scalability and open architecture we required, and we were very impressed with their vision for the Global Trading Web.”

After establishing their horizontal e-marketplace, Tradecom.pt looked to rapidly expand their buying community by leveraging the existing customer base of Portugal Telecom. The company then augmented the community with a program designed to attract suppliers that provided products and services across multiple industries.

“Tradecom currently offers its buyers a wide range of suppliers including office and computer supplies, employee recruitment services, travel, financial services, car rental, catering, marketing and advertising agencies, and event planning,” said Horta Costa.

lems, what they are also seeing is the enormous potential driven by the most powerful set of changes to ever impact business.

The E-Marketplace Company

It is the long-term potential of Internet-enabled e-business that drives Commerce One, which has taken a leadership role in creating global e-commerce solutions for its customers.

Commerce One is the e-market-

place company. Through its software, services and Global Trading Web of interconnected e-businesses, Commerce One enables worldwide commerce on the Internet. Customers create highly efficient e-marketplaces composed of transparent commerce communities of trading partners. This interaction dramatically improves profitability for all the participants.

"What you're seeing," says Hoffman, "are the very beginnings of

the marketplace of the future. At Commerce One we're involved in helping to create a global network of Internet-enabled marketplaces where all businesses, no matter what their size, can trade with each other, anytime, anywhere. In 1999, with the launch of the Global Trading Web™, we laid the foundation for this vision. The response has been phenomenal."

The reason for the enthusiastic



Enporion turns to CGE&Y for e-marketplace expertise

"Starting any company is never an easy task. But bringing together seven energy companies to form an electronic marketplace presents a level of complexity few business professionals have ever experienced. Credit for the success in getting Enporion deployed as well as the speed with which we brought the exchange to life is shared by the representatives from each of our participating utilities, the MarketSet™ solution platform jointly developed by SAPMarkets and Commerce One and the expertise and guidance we came to depend on from Cap Gemini Ernst & Young," maintains Enporion CIO Michael Johnson.

A new marketplace serving the electric and gas industries, Enporion brings buyers and suppliers together to conduct secure transactions, share knowledge and collaborate to achieve excellence throughout the supply chain. And, says Johnson, one of the first—and most important—action items his company completed during Enporion's start-up phase was the hiring of Cap Gemini Ernst & Young (CGE&Y) as its business strategist.

"Enporion was new territory for every member of the team," says Johnson. "We had the industry experience. What we needed was a business partner who could bring the intellectual capital necessary for successfully creating a collaborative global online marketplace."

Collaboration is key

Interestingly, collaboration was not only the goal of the Enporion exchange; it was also a pre-requisite in the selection of a business partner.

"We were looking for a business partner who would be as

committed to our success as we were and we wanted to participate in the process," he explains. "Many consultants want you to simply hand over the control. We wanted to work with an organization whose business model allowed for—even encouraged—team collaboration. We found exactly what we were looking for with CGE&Y."

CGE&Y offers a comprehensive suite of services designed to enable companies to quickly move to and capitalize on the efficiencies of Internet-based, electronic marketplaces. According to Johnson, CGE&Y can help with developing a B2B e-marketplace launch strategy, conducting e-readiness assessments and exchange design—whatever is needed to enable new levels of operational excellence at every point within the supply chain.

As Enporion's primary business partner, CGE&Y helped formulate strategy and, says Johnson, "kept us moving forward. CGE&Y was involved in everything from developing marketing models to evaluating potential sites for our corporate headquarters."

In addition, CGE&Y co-chaired the technology team. Although the actual selection of the technology was left to Enporion's technical team members, CGE&Y played a "significant role" helping the group develop criteria and evaluate individual offerings. CGE&Y was also chosen as the primary contractor for deploying the SAPMarkets/Commerce One solution.

In just eight months, Enporion has journeyed from an idea to one of the preferred electronic auction houses, featuring multi-variable bidding, RFP posting and a whole lot more.

"CGE&Y really distinguished themselves in this effort," says Johnson. "Their methodology was key to achieving the speed to market we felt was essential to Enporion's future."

adoption of the e-marketplace concept is that it not only solves core procurement and supply chain problems, but it also creates a whole new set of opportunities that allows these businesses to forge a far closer relationship with their customers.

For example, companies such as Eastman Chemical Company, Idaho Power, Schlumberger Oilfield Services, and Siemens Procurement and Logistics have all implemented the Commerce One e-marketplace solution. The results include significantly improved procurement cycle times, reduced purchasing costs and far greater control over the entire procurement process.

Public, Private and Access

Commerce One's Hoffman categorizes three types of e-marketplace solutions: Public, Private and E-Marketplace Access.

- A public e-marketplace supports the common e-commerce requirements of an industry or region.
- A private e-marketplace provides e-commerce capability for a single company's diverse business units and unique business processes.

In this case, the benefits derived from the e-marketplace accrue directly to the enterprise and its supply chain. As AMR Research points out, "The real power of the Private Trading Exchange (private e-marketplace) lies in streamlining and improving efficiency in existing trading relationships, including those with resellers, distributors and logistics providers."

- With the third approach, E-Marketplace Access, the beneficiaries of e-marketplace value do not even have to implement the e-marketplace themselves. Instead they

Siemens Automates Purchasing. Creates "click2procure"

Siemens has the distinction of being the largest foreign employer in the United States. The world leader in electrical engineering and electronics employees with 70,000 people at 600 locations across the country.

The company's spending for indirect goods and services is equally impressive—more than \$1 billion annually.

Siemens Procurement and Logistics Services (SPLS) division in North America offers a range of purchasing and logistics services to Siemens' operating companies and third-party customers. Included are global sourcing, electronic procurement and excess inventory services.

In 1999, SPLS selected Commerce One to provide an automated purchasing solution. Pete Ochel, vice president of Procurement for SPLS commented "Our team selected Commerce One because we found it provides the leading technology in the e-commerce space with its Enterprise Buyer solution as well as access to other virtual marketplaces."

SPLS created "click2procure" using the Commerce One technology and began negotiating with its suppliers for new contracts. The SPLS strategy was to bring together all of its operating companies, select preferred suppliers and negotiate the best prices for everything from services to equipment.

A pilot project was launched in February 2000 with two internal customers for click2procure—Siemens Corporation and Siemens Shared Services. Shortly thereafter seven Siemens organizations began to use the system with more than 1500 end users conducting live transactions. Today that number has grown to over 30,000.

Using the Commerce One solution, SPLS has reduced the cost of creating a purchase order by approximately 75 percent. According to Ochel, "We have both short- and long-term goals for aggregating Siemens' indirect spend over click2procure. The short-term goal is to bring all major Siemens operating companies on to click2procure in 2001. At this point we expect to capture 50 percent of Siemens' indirect spend on the system. The long term goal is to raise that number to about 80 percent, and then offer the solution to third party customers."

implement applications sometimes known as "on-ramps" to streamline internal procurement and participate in existing e-marketplaces, public or private, as a buyer, supplier, or service provider.

Hoffman is quick to point out, however, that these three e-marketplace solutions are only the first part of the B2B value proposition. As

beneficial as each solution is individually, the benefits multiply when the solutions are connected to each other. This is the power of the Global Trading Web, the world's largest open, B2B Internet-based trading community. With its many participating e-marketplaces and "on-ramps," the Global Trading Web allows its members to do busi-



Compaq and Commerce One: strategic alliance for B2B e-commerce

Analysts predict that products and services sold through B2B e-commerce will generate more than \$7 trillion worldwide by 2004, with e-marketplaces driving nearly 40 percent, or \$2.7 trillion, of these transactions.

The goal of the Compaq-Commerce One alliance is to drive global adoption and use of B2B commerce solutions through joint solutions that simplify access and reduce the overall price of entry.

As more and more businesses participate in e-marketplaces and liquidity is increased, participants are expected to reap the benefits of significantly reduced costs and expanded reach to incremental buyers and sellers, as well as facilitated sourcing and the ability to reduce inventory through spot buying or auctions. Compaq and Commerce One collaborate on optimizing the performance and deployment of e-marketplace solutions including buyer and supplier on-ramps and forward and reverse auction service on state-of-the-art Compaq ProLiant™ industry-standard servers.

Compaq and Commerce One also collaborate to optimize and promote the Microsoft Windows NT and Windows 2000 Server operating systems as Commerce One's lead platform, and to develop and sell e-marketplace solutions based on the Windows platforms.

Compaq Global Services, with 40,000 experienced service professionals, is already a key provider of systems integration services to Commerce One customers and is expected to play an expanded role in delivering planning and implementation services to customers worldwide. Together, the two companies offer customers unequalled performance, optimized reliability, scalability and availability in their e-business deployments.

Expanding successful collaboration

In recent months, the Compaq-Commerce One relationship has resulted in some of the industry's most reliable, available and scalable e-procurement and e-marketplace solutions available today.

Commerce One powers the Compaq Global Business Exchange, a major Compaq e-commerce initiative that enables large commercial customers to buy directly from Compaq and other suppliers through the Compaq-hosted Commerce One solution. Compaq plans to extend this capability to hundreds of its channel partners in the near future.

Compaq is the preferred platform provider for Commerce One with more than 2/3 of Commerce One e-marketplaces using Compaq servers. Customers such as British Telecommunications, Exostar and Com2B chose Commerce One solutions on Compaq platforms because of the close collaboration between the two companies. Additionally, Compaq powers Commerce One.net and provides the hardware infrastructure for a growing number of Commerce One-hosted e-procurement and Net market maker customers.

ness through a single connection, with any supplier on another e-marketplace, anywhere in the world. The result of this "e-commerce network effect" is better market intelligence, tighter collaboration, better business decisions, lower transition costs, and optimal pricing for all participants.

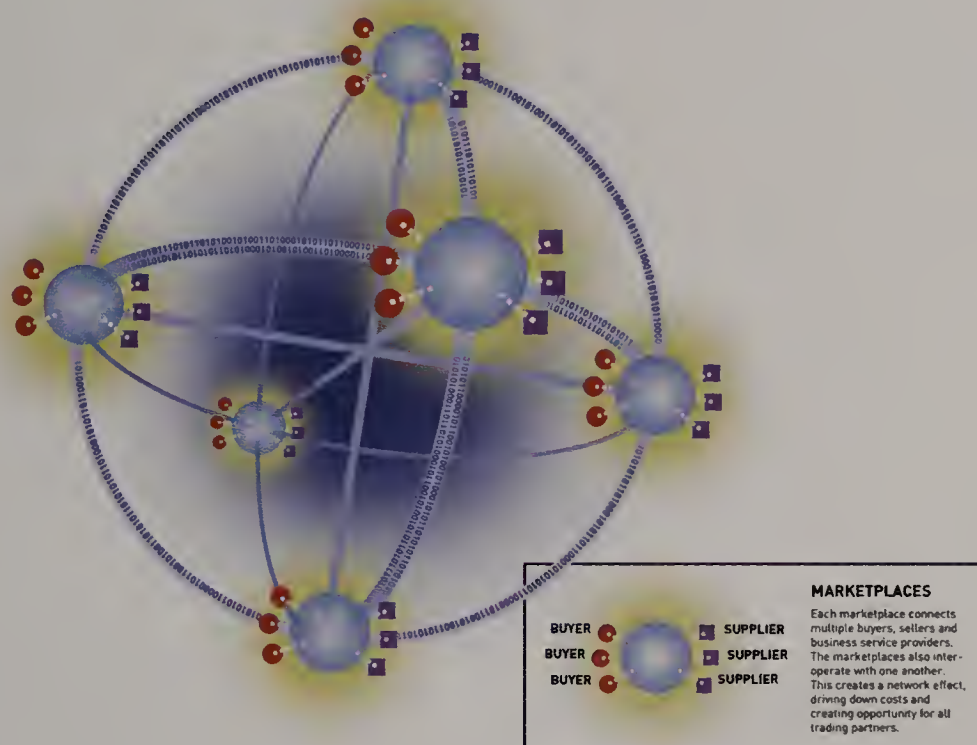
Reasons to Jump In

Whether it's a public, private or an initial commitment to an e-marketplace, there are a lot of reasons why companies will want to become involved.

When buyers and sellers are linked into a global trading community, such as the Global Trading Web, they have far greater opportunities for mutual e-commerce. Through a single connection accessed by a Web browser, additional customers and markets become instantly available. Buyers find supplementary sources for new and existing products, some of which may not have been available in their regional or vertical e-marketplaces. They can leverage services that increase flexibility—for example, enabling auctions for buying or selling goods. More potential sales channels are opened up to suppliers and supplier costs for receiving and fulfilling are reduced. And, because this type of relationship is all about communications, both buyers and sellers have a foundation upon which to create new trading relationships, explore new markets and launch new products.

These kinds of marketplaces tend to generate their own momentum. By providing access to new services, sources and markets, greater value is delivered to the trading community. This increased

GLOBAL TRADING WEB



The Global Trading Web is the world's largest open B2B Internet-based trading community. Each marketplace connects multiple buyers, sellers and business service providers. The marketplaces also interoperate with one another. This creates a network effect, driving down costs and creating opportunity for all trading partners.

value, in turn, motivates the existing partners to increase their trading activities. At the same time, new partners rush to join the e-marketplace to get in on the action.

A Matter of Money

Of course, at the simplest level, an e-marketplace, whether public or private, is attractive simply because it promises to save significant amounts of money. For example, Eastman Chemical, Kingsport, Tenn., began using Commerce One Enterprise Buyer Desktop Edition™ (formerly known as BuySite™, Commerce One's on-line e-procurement solution) in January 1999 to purchase base supplies such as hydrochloric acid. The return was immediate and dramatic—Eastman slashed the cost

of an average purchase order from \$115 to less than \$30. And this is just the tip of the iceberg.

AMR Research estimates that, based on a 29 percent adoption of B2B e-commerce, cost reductions of indirect procurement will exceed \$82 billion by 2004. And, if just a four percent reduction is realized in direct procurement costs, this number balloons to \$229 billion.

Because the e-marketplace is linked to a global network, connecting B2B buyers and sellers around the world, the benefits of this new approach go far beyond e-procurement. These e-marketplaces take full advantage of what is known as the network effect. Computer industry guru Bob Metcalfe once pointed out that the more devices are hooked up

to a network, the more valuable that network becomes. A stand-alone fax machine is useless; the impact of millions of fax machines that can now communicate with one another over today's global networks is priceless.

In the New Economy, as the number of linked buyers and sellers increases, the value to each of the participants increases. A new Web of relationships is formed, a sort of business ecosystem. Buyers find they have access to more sources of materials and components at better prices along with faster and more flexible delivery schedules. For the sellers, the ecosystem provides them with more markets, more customers and the ability, if they choose, to think in global terms. But perhaps even more important, for both buyer and seller, being part of the ecosystem provides the potential to discover innovative solutions that would not have been possible in the past.

Global Trading Web

One of today's hottest examples of how this ecosystem approach to e-commerce is paying off is the Global Trading Web. The Global Trading Web brings together world-class market makers in order to form the world's largest B2B trading community. Founded by Commerce One in 1999, today the Global Trading Web includes over 140 e-marketplaces in a diverse range of industries and world regions. Beginning with Commerce One.net™, an open e-marketplace that provides global e-commerce services to buyers, suppliers and Net market makers, the Global Trading Web quickly expanded on a global basis. The next step was a major licensing agreement with British Telecom to

e-marketplace





Global Trading Web

IF A SINGLE E-MARKETPLACE
IS GOOD FOR BUSINESS, SEVERAL
HUNDRED ARE EVEN BETTER.

That's the basic idea behind the Global Trading Web,SM an open network of astronomical proportions that links e-marketplaces from every industry and platform together into one. This was our vision from the beginning. After all, if e-marketplaces exist to let buyers and sellers collaborate and conduct high-volume transactions, why not let e-marketplaces collaborate too? And crank the volume to the max. To find out more about the Global Trading Web, visit commerceone.com/emarketplace4 or call 877-261-8516.

**COMMERCE
ONE[®]** 
MANY MARKETS. ONE SOURCE.TM

establish a global trading e-marketplace for the U.K.

BT initiated its e-marketplace by purchasing Commerce One Enterprise Buyer e-procurement solution to streamline its internal purchasing procedures. When the cost of purchase orders dropped from an average of \$113 to \$8, BT counted themselves among the converted. Next BT purchased the

Commerce One MarketSite Operating Environment™ and created a new public e-marketplace, BT MarketSite, which its corporate customers use to purchase their own supplies on-line. The BT MarketSite generates revenues for BT in the form of transaction charges, banner advertising revenue and other fees. Commerce One receives a percentage of the site's revenues as well.

It wasn't long before other companies followed suit—establishing regional e-marketplaces around the world and becoming Global Trading Web members. Jumping on the bandwagon were NTT Communications in Japan, SESAMi.com in Southeast Asia, Australia's Cable & Wireless Optus, Banacci in Latin America, the TD Bank Financial Group in



Commerce One and Intel® solutions for e-marketplaces

In 2000, Commerce One and Intel entered into an alliance to deliver highly scalable e-commerce solutions through tight integration and optimization of Intel's technologies and Commerce One's e-commerce solutions, including solutions based on the Intel Itanium™ processor.

"Intel architecture currently powers the Global Trading Web partner e-marketplaces, so it was a natural step to work with Commerce One to continue to build best of class e-commerce solutions," notes Sean Maloney, executive vice president, director Sales and Marketing Group for Intel.

The Commerce One and Intel alliance brings together resources that will allow customers to take full advantage of e-commerce efficiencies enabled by Intel-based servers such as security, scalability, and reliability, as well as a low total cost of ownership.

"E-marketplaces have to scale to handle the billions of dollars in transactions that leading companies want to move onto the Internet. Our work with Intel and other industry leaders such as Microsoft, Compaq and Hewlett-Packard is key to supporting the tremendous volume of transactions that will come across these e-marketplaces," adds Chuck Donchess, chief strategy officer for Commerce One. "Our work with Intel further demonstrates our commitment to deliver open, scalable e-commerce solutions that allow businesses to trade with anyone, anytime, anywhere in the world."

Commerce One's customers and partners will be able to easily scale and grow their marketplaces on Intel architecture as they continue to increase transaction volume.

Commerce One.net powered by Intel-based servers

Commerce One.net, a Commerce One hosted e-marketplace

for business-to-business e-commerce, is at the heart of the e-marketplace revolution that some experts predict will represent 56 percent of all business-to-business (B2B) transactions. Thousands of buyers and suppliers conduct mission critical business over Commerce One.net's servers everyday. They collaborate with each other, trade and source new products and services.

The Commerce One.net e-marketplace is an excellent illustration of how the Commerce One-Intel solution meets mission critical requirements for reliability, scalability and availability. Not only can an e-business run its own operations on Intel-based servers, it can, as in the case of Commerce One.net, run other companies' e-business as well.

Today 140 Intel® based servers power Commerce One.net, providing an open platform on which to build the Commerce One.net e-marketplace.

"The competitive advantage that we gain from operating on an open standard is massive," reports Roy Satterthwaite, vice president of Commerce One.net. "Commerce One.net can plug into multiple systems, translating into the fastest time to market for our customers. If they have multiple systems today, they can integrate them into their environment. They don't have to pull out those systems and put in something else that will work with the exchange. The fact these systems can all run on Intel is key."

Commerce One.net is only one example of how the Commerce One-Intel solution can meet your business needs. To learn more about Commerce One and Intel solutions visit www.intel.com/eBusiness.

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Canada, Germany's Deutsche Telekom and Swisscom AG, Switzerland. Notes Mark Nittler, Commerce One vice president, Strategic Marketing, the Global Trading Web has taken on a life of its own.

A Web of Relationships

Participants in the Global Trading Web are not only enjoying significant savings in their trading efforts—this approach provides many other benefits as well. They are able to leverage the existing infrastructure of the trading community because each e-marketplace potentially has access to the trading partners, products, sources and services of other e-marketplaces within the network.

These ad hoc partnerships, which can form and reform organically within the Global Trading Web's ecosystem, allows the participants to share economic advantages as well as eliminate redundant development efforts, speed time to market and realize an increased return on investment.

By using the capabilities of the Global Trading Web, individual e-marketplaces become more efficient by aggregating demand, managing supply chains, developing trust models, and exchanging business documents. Reliance on cumbersome fax and telephone based-systems is rapidly becoming just a memory. Instead companies are wholeheartedly adopting the Internet-based on-line model, complete with Web interface, in order to streamline and speed business processes.

Another benefit of the network effect is the economies of scale

Compaq Used Procurement Application To Open New Global Sales Channel

Compaq Computer Corporation, the \$38.5 billion dollar computer company headquartered in Houston, Texas, is using the Enterprise Buyer e-procurement solution to boost its sales to its key customers.

The company is offering the procurement application to its global customers that spend a minimum of \$5 million a year on Compaq equipment and services.

These preferred customers realize several benefits—not only is their computer procurement process streamlined but they can use the application to buy from any vendor whose products are essential to their daily business operations.

Said Curtis Hutcheson, director of E-procurement and Strategic Planning for Worldwide E-commerce at Compaq, "By leveraging the Commerce One e-procurement tool, we are improving the way our customers can buy computers, enabling not only a new method to buy from Compaq, but from other suppliers as well."

By hosting Enterprise Buyer, Compaq enables its customers to avoid lengthy, expensive implementations. "Customers do not want to endure a six-month deployment waiting period," said Hutcheson. And why should they when Compaq global services can enable online purchasing within two to four weeks?

By the end of 2000, nearly 500 registered customers were on the system with others in various stages of implementation. The company leverages Enterprise Buyer to transact with customers in multiple European and Latin American countries.

"We are excited about having gone live in several geographies so early in the project, because our international business is very important to us," Hutcheson said.

possible with a global trading community. By participating in the Global Trading Web, each trading partner enjoys substantially more business opportunities with little or no additional investment. Profit margins on each transaction increase and time to market speeds up. As the Web grows, competitors find it increasingly difficult to overcome the financial and networking critical mass that has been built up by the linked e-marketplace partners.

Even though the Global Trading Web is a worldwide phenomena, because it connects to regional sites, e-marketplaces anywhere in the

world are able to deliver localized content. Local markets can be addressed in their native language with full regard for local culture, laws and business practices.

Each member of the Global Trading Web, working with the solution's flexible, open architecture, can set its own pricing and economic model, as well as offer unique business services to its constituents. At the same time, each e-marketplace contributes tools, insights and innovations that benefit the entire Global Trading Web community.

The Global Trading Web is rapidly evolving into a large, open community, independent of any one

Microsoft®

Business leaders choose Microsoft-based Commerce One solutions for B2B needs

Today, Microsoft and Commerce One are working together to create the second wave of e-business. The companies share a strategic vision, a global alliance and a proven track record of technical collaboration and customer successes among Fortune 500 clients and new e-businesses alike—empowering the largest of global e-marketplaces.

As a result of the long-standing relationship between the two companies, Commerce One is developing a next-generation e-marketplace infrastructure optimized for transaction scalability and ease of administration. Built on Microsoft .NET Enterprise Servers, this newly designed infrastructure will greatly enhance the scalability, reliability, agility and price performance of enterprise B2B solutions.

The combination of Commerce One's global industry expertise and e-marketplace solutions with the business agility of the Microsoft .NET platform will provide customers with increased speed to market, seamless product integration and new business opportunities.

Microsoft Windows® 2000 Server, Microsoft SQL Server 2000, Microsoft BizTalk Server and Microsoft Commerce Server provide enterprise and mid-size customers faster time to market, scalability and reliability—allowing them to transform the way they interact with customers and partners, to get a quicker return on investment and to maintain business agility in a rapidly changing marketplace.

Global Trading Web deployed on Microsoft platform

Enterprise customers of all sizes are realizing this business agility through solutions from Commerce One and Microsoft. In fact, the world's largest B2B trading community, the Global Trading Web, is deployed on the Microsoft Windows platform.

Commerce One and Microsoft are also collaborating in Microsoft's E-Business Acceleration initiative. This initiative is an integrated, B2B strategy that makes it easy for companies of any size to use the Internet to transact business through multiple sales channels whether it's e-marketplaces, e-procurement systems or directly with customers.

The combination of Microsoft and Commerce One can help you gain business agility and lower cost of ownership.

(www.covisint.com), the organization notes that "E-business is not about incremental improvement; e-business will fundamentally redesign your enterprise. Web sites that offer incremental solutions to isolated aspects of your company do not enable you to reap the true benefits of e-business. Covisint will address your entire business, link you to the entire industry, and provide the energy to accelerate your operations to the lightning speed of the Internet."

Covisint will support the following automotive industry goals:

- 12–18 month vehicle development cycle
- Compressed order-to-delivery cycles (one of the current El Dorados of the automotive industry is the five-day car—five days from customer order to delivery to the customer's front door or dealer)
- Increased shareholder valuations within the automotive industry
- Greater asset efficiency and utilization
- Higher profitability with direct impact to the bottom line
- More integrated supply chain planning
- Reduced business process variability

Commerce One is providing many of the core B2B capabilities for Covisint. For example, the automotive e-marketplace is using Commerce One MarketSite, the company's e-marketplace operating environment, as the transaction engine for trading all kinds of goods and services, including indirect and direct materials. Covisint is hosting the Enterprise Buyer e-procurement solution for use by participants in the e-marketplace. And, Covisint is putting into play the Commerce One auction

vendor's hardware, software or networking solutions.

The Covisint Project

One of the foremost examples of a global B2B exchange is Covisint, the huge automotive e-business trading exchange supported by DaimlerChrysler, Ford, General Motors and Renault/Nissan.

Covisint is a major undertaking. Organized on December 8, 2000, the organization, which is temporarily headquartered in Southfield, Michigan with offices in Europe and the Asia-Pacific region, has a clear vision for its participants and the automotive industry as a whole.

Addressing its members and trading partners on the Covisint Web site

and catalog content solutions as well as relying on Commerce One Global Services to provide strategic and technical consulting resources.

Covisint is a good example of how one of an e-marketplace's members can benefit the entire trading community. In this case, General Motors, looking for a way to drive inefficiencies out of its purchasing process, turned to Commerce One to help develop GM TradeXchange. With the emergence of Covisint, the operations and functionality of GM TradeXchange has been absorbed into the Covisint global B2B exchange. (For more on TradeXchange, see the sidebar on this page.)

Some of the other mega-e-marketplaces that Commerce One is helping to create show the magnitude and momentum of this trend. For example, Exostar brings together buying members BAE Systems, Boeing, Lockheed Martin and Raytheon. These four founding members have a combined annual procurement outlay of \$71 billion and currently do business with 37,000 suppliers.

Trade-Ranger includes 14 oil and gas companies, including such industry leaders as BP Amoco, Dow Chemical, Occidental Petroleum, Phillips Petroleum, Royal Dutch/Shell and Unocal. Annual procurement spending by the 14 members tops \$125 billion.

Due to the participation of major companies from nearly every industrial sector, multi-billions of dollars in transactions are already flowing through the Global Trading Web, bringing efficiencies and cost savings to companies around the world.

TradeXchange at GM Reduces Spending, Generates New Revenues

General Motors is at the top of the heap—number one on the Fortune 500 and the world's leading manufacturer of cars and trucks. Brands include Buick, Chevrolet, GMC, Cadillac, Pontiac and Saturn. Revenues for 1999 were more than \$176 billion. With 600,000 employees in 127 countries, GM spends about \$86 billion each year through more than 30,000 global suppliers. GM indirect spending—money not spent directly on the parts and labor for a finished vehicle—accounts for \$10 billion.

In December 1999, after consolidating its purchasing operations, GM partnered with Commerce One to create GM TradeXchange. Ray Pollard, director of Global Strategic Alliances for the exchange noted that "We evaluated comparable solutions from other companies, but Commerce One was the only one able to provide a true, global marketplace strategy that complemented its market leading technology."

Key missions of the new exchange include reducing the cost of producing purchase orders, increasing the company's return on used machinery by leveraging Commerce One Auction Services, and hosting an e-commerce platform for other buyers and sellers within the automotive industry to realize similar savings through improved supply chain management.

GM worked with Commerce One to create GM TradeXchange using the Commerce One MarketSite Operating Environment, and with PricewaterhouseCoopers to implement the Enterprise Buyer e-procurement solution within its internal purchasing department.

Rather than selling used machines to a scrap dealer for a fraction of their original purchase price, GM TradeXchange support of Commerce One Auction Services allows GM to realize significant revenues. For example, equipment that might have brought between \$0 to \$80,000 from a scrap dealer, often generate bids for between \$200,000 and \$300,000 in an auction. GM also uses the marketplace's capabilities to conduct reverse auctions in order to solicit the best value for direct goods—raw materials or components used to produce finished products.

Currently GM generates more than 3,000 purchase orders per month. Since December, 1999, the company has routed \$28 million in indirect spending through TradeXchange and realized approximately \$4.5 million in revenues through Commerce One Auction Services.

According to James Lykins, director of sales and marketing for GM TradeXchange, GM has saved millions of dollars through reverse auctions. "This is great," he said, "but even better is the amount of time we will ultimately be saving. The automation we have already achieved was impossible in the past. The liberation from manual processes has added incredible value throughout our organization, and we are now planning to build cars in days rather than weeks or months."

GM TradeXchange is part of the Global Trading Web. GM is able to share the benefits of participating in the exchange, including the knowledge and experience it has gained, with all the members of the global trading community.

Public and Private E-Marketplaces

The same engines and concepts that drive public e-marketplaces power the fast growing world of private e-marketplaces. Many companies are now creating these private e-marketplaces to realize the same benefits afforded by the public e-marketplaces for operations that are best handled between "insider" groups of trading partners.

Nittler points out that this approach is appropriate when, "a company has a unique supply chain that lends itself to a private e-marketplace. For example, a soft drink manufacturer may have created a highly integrated vertical supply chain that extends from the cane fields all the way to the factory. This unique business process is probably not available through a public e-marketplace.

"But this is not an either/or situation," he continues. "It's unrealistic to assume that the business world will be characterized by purely private or public e-marketplaces. Instead we are beginning to see the emergence of a blended model in which an enterprise will employ private e-marketplaces for vertically integrated supply chains and situations where security or proprietary processes are an issue, and use their membership in a public e-marketplace for e-procurement, global supply chains, auctions and other activities that benefit from a public approach."

E-Marketplaces and the Enterprise

According to Nittler, whether an enterprise chooses to become part of a public or private e-market-

place, combine the two approaches, or take the on-ramp route to become more familiar with this new business model, a fundamental shift in assumptions about implementing the technology takes place.

"In the pre-Internet IT model, software applications were focused on the operations of the individual enterprise—it was an inward-looking approach, concerned about what was happening within the confines of the organization," he says. "IT technology was primarily focused on calculation—capturing and summarizing transactions and creating reports. The technological infrastructure reflected these concerns in the form of mainframe-based, centralized computing or, more recently, client/server architectures. This approach provides valuable insights into internal business processes and, when linked together, these processes create a single data model for the organization."

"But now the Internet has changed everything," Nittler continues. "In addition to dealing with internal systems, the Internet allows the organization to shift its focus outward to its trading partners, suppliers and customers. The primary role of information technology is to provide communications with a far wider and diverse community. And, of course, this shift makes possible B2B e-marketplaces, both public and private.

"From the CIO's point of view, one of the biggest challenges in moving to this new business model is the changed relationship with the external world," he adds. "In the older inward-looking enterprise systems, IT had firm control over standards, hardware, software and the

networking infrastructure. But in a marketplace model, it is no longer possible for the IT organization to dictate standards and protocols—suppliers, trading partners and everyone else involved in the e-marketplace bring a very heterogeneous environment to the table. Openness and interoperability become essential. New connectivity strategies, such as using hubs to connect one to many—the same approach taken by IP multicasting—becomes a preferred solution to routing communications between e-marketplace participants. What's at stake is the ability to aggregate people, enterprises, buying power and information in order to realize all the benefits that the e-marketplace model makes possible."

XML Under the Hood

Nittler notes that the Global Trading Web is a good example of a trading community that is enjoying organic growth—a changing and constantly expanding trading ecosystem. This is possible because the underlying technology is based on an open architecture and widely disseminated industry standards. While providing the security and controls that make global transactions possible, this open approach makes it possible for Web members—no matter what IT systems they are using internally—to communicate with one another.

A key technology enabler for the e-marketplace is XML, a platform for information exchange between computers. Several industry initiatives are under way to develop universal XML standards to accelerate the adoption of XML-based B2B e-commerce. Commerce One has

eScout teams with PricewaterhouseCoopers to extend B2B model

From Many, OneSM is the force behind eScout, a Web-based e-commerce and e-business network for businesses looking to reduce costs, manage business processes and execute transactions via the Internet. By creating a community in which all members support and empower each other for sustained growth, eScout has brought business-to-business e-commerce to a new dimension: the collection of a disparate membership base that enjoys an online environment where members confidently transact business with each other.

"Our mission is to empower members through a group of online services so they can buy, sell, learn and grow," commented eScout CEO, Sandy Kemper. "In economic ecosystems, the real power is the collaboration across the network. As eScout guides more and more independent businesses and introduces them to other businesses, we create new opportunities and economies of scale typically reserved for only the largest of companies. In the Industrial Age, scale was created through physical acquisition. In the Information Age, scale can be created through virtual aggregation."

PricewaterhouseCoopers is working with eScout to extend this B2B model. The companies have teamed to develop a supplier integration strategy and value proposition and to refine day-to-day operations for enhancing IT performance in project management, product development and technical architecture. Together, they have developed marketing services such as promotional programs and incentive plans for buyer attraction and retention. PricewaterhouseCoopers project partner Brian Mitchell describes eScout as having, "The dynamic atmosphere and forward-thinking management team to achieve the agility needed to be successful in the B2B environment."

Online environment based on trust

To help companies use the Internet for broader business opportunities, eScout provides a variety of e-business solutions organized into three core business areas. These include: eScout MarketPlaceSM, its premier MRO e-commerce hub; eScout SolutionsSM, where companies access logistical, human resource, and various office productivity applications; and eScout InsightSM, a rich collection of information sources tailored by industry and geography. A world-class customer service group, legendary in their responsiveness and knowledge, supports all of these areas.

Unlike solutions defined solely by technological functionality, eScout differentiates itself by creating an online environment that not only offers best-of-breed technology, but also is based upon the foundation of commerce itself: trust. This trusted environment is a direct result of the secure relationships eScout-partnered companies have already forged with their commercial customers. The growing eScout member network now represents more than 9,000 companies and more than 25,000 buyers. They choose from a growing selection of more than 75 suppliers who collectively offer millions of products in virtual inventory. Since its inception, eScout has electronically generated tens of thousands of invoices, hundreds of thousands of transactions and millions of dollars in sales.

eScout also is a founding member of the Global Trading Web, the world's largest online trading community. The eScout MarketPlace, by virtue of averaging thousands of transactions per week, is one of the most active transacting members of the Global Trading Web.

partnered with industry leaders such as Sun, Microsoft and Compaq to lead the way with the XML Common Business Library, or xCBLTM, a set of XML building blocks and document framework that allows the creation of robust, reusable XML documents to facilitate global trading.

In addition, this open architectural approach makes both public e-marketplaces and private e-marketplaces interoperable with leading

procurement, sales and ERP applications. Technical interoperability assures that files, data and applications can be transferred across the platform to every user. Business services, such as payment or logistics functions, can be syndicated across multiple e-marketplaces.

Future of E-Commerce

"What made the e-marketplace concept attractive at the very beginning was saving costs," says

Commerce One CEO Hoffman. "This is still a major motivator, but now that companies are beginning to see the full potential of e-marketplaces, the top priority has changed. Now the reason enterprises are building market sites and participating in B2B e-marketplaces is to create a competitive advantage and to get closer to their customers."

"As a result, we're seeing a movement toward exchanging more com-



With MarketSet, IBX can build locally, trade globally

“We had two major reasons for choosing the MarketSet solution,” explains Mats Oretorp, marketing director for IBX Integrated Business Exchange, “the overall maturity of the application platform and the business model it supports.”

Founded in 2000 by SEB, Ericsson and b-business partners, the Integrated Business Exchange (IBX) is already one of the most powerful independently owned, open B2B exchanges in northern Europe. By linking together buyers and sellers of goods and services across all industries and countries in the Nordic region, IBX facilitates efficient transactions, allowing customers to easily transact and collaborate with one another regionally and on a global scale through the Global Trading Web.

“Commerce One and SAPMarkets have an excellent track record selling into volume marketplaces and, in our eyes, they are delivering the most fully developed, mature, standard application for e-commerce today,” says Oretorp. “But just as important is their joint support for a business model which allows global presence to be built up by local hubs connected together in the Global Trading Web. Other vendors have only centralized models, where everything is basically connected to a US hub. For a region like ours, that model simply will not work. You must build locally. You need to understand the currencies, the VAT rules, the local market dynamics—this is what the Global Trading Web is all about. Many of the suppliers we hook up to are local and in order to support an international roll out we need to have an efficient network of mar-

ketplaces in different regions, where they are specialized, know the supplier’s market and can manage content.”

Value proposition for customers

According to Oretorp, SAPMarkets’ and Commerce One’s knowledge of both the internal processes that large buyers need to automate and get control over, coupled with their awareness of the challenges presented to the middleman to be able support and connect into the e-procurement system, is a value proposition for vendor and customer alike.

“SAPMarkets has a thorough understanding of the internal business processes within a corporation, whereas Commerce One is focused on e-marketplaces. By sitting down together, they have been able to develop even richer functionality than either could independently,” he adds.

Oretorp has been “very pleased” with the support he has received from SAPMarkets and Commerce One and credits the team with understanding and responding to IBX’s needs.

“This is still an evolving market,” he says. “It’s still pretty immature, the business models as well as the application platforms are changing constantly. No one can stand up and say they have all the answers today, so support from your vendor is key. Moreover, it’s almost impossible to predict exactly what kind of application functionality you’ll need eighteen months down the line. SAPMarkets and Commerce One understand this and we are confident they will be able to deliver what we need as we go forward and refine our business model.”

plex data types on the part of Commerce One partners and customers.” Hoffman concludes. “New services are being traded, more direct goods are being exchanged. There is far more collaboration between part-

ners. Internally, companies are using these e-marketplaces to help guide major reengineering changes within the organization to accommodate this outward looking, communications-based business model. Supply

chains and procurement activities are becoming more efficient and flexible. These e-marketplaces are a shining example of what can be done in an Internet-enabled world. We have an exciting future ahead of us.” •

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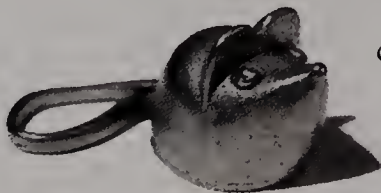
The human side of information technology.

BUSINESS STRATEGY

What Antitrust Laws?

IT MAY NOT be as tasty as the all-chocolate version created in 1978, but Monopoly—The .com Edition is still pretty sweet, offering intrepid entrepreneurs their shot at being high-tech Internet moguls (on the game board anyway).

In this recent addition (\$29.99) to the board game lineup from Pawtucket, R.I.-based Hasbro, players build virtual fortunes buying and selling everything from eBay and FoxSports.com to Ask Jeeves. Instead of yesterday's Chance and Community Chest cards, now your fortune



changes when you land on "Download" or "E-Mail Just In." The classic pieces have been updated too; Mr. Monopoly now sports a zippy laptop. There's also a mouse and a digitized hyperlink hand with which to travel around the board. And while it's still a good strategy to collect some connectivity providers such as Sprint



and Nokia or a utility like Linux, true gamers set their sights on the Boardwalk of the dotcoms—Yahoo.

One small warning: Passing Go may net you \$200 million, but the ISP fees will take their toll, and jail awaits those e-entrepreneurs unlucky enough to lose their Internet connection.

—Amanda S. Fox

HOT TOPIC



E-COMMERCE

Buy by Phone

By Joe Kendall

THE HYPERBOLE SURROUNDING the mobile Internet continues to soar. Why, by 2003, phones will buy clothing, pay mortgages and require a separate ticket for airplane flights.

OK, maybe it's not that bad, but the mobile Internet incites more optimistic discussion than any technological innovation since, well, the fixed-line

Internet. Currently, there are 1.3 million mobile Internet users and an expected 20 million in 2003, says Yankee Group Senior Analyst David Bishop.

Huge hype has heralded the potential of mobile e-commerce (excuse me, m-commerce), but last Christmas proved that so far, few people want to buy stuff using their phone. In a study by The Boston Consulting Group of 1,633 current and potential m-commerce users, 24 percent gave up on it after a few tries and half were dissatisfied with their first purchasing experience.

So what then is the future of mobile e-commerce? Location-based services. Say you want to buy a pair of

jeans. You access a personalized Web portal, such as Yahoo Everywhere, on your wireless application protocol-enabled phone and type the product name. Your phone's display lists local stores that have the best prices, along with numbers to call to make sure the jeans are in stock. Then the system gives you directions from exactly where you are standing to the store that you select. Christopher Wu, producer for Yahoo Everywhere, says, "We view m-commerce as a complement to brick-and-mortar companies...helping you with your decision process."

The Federal Communications Commission has mandated that by Dec. 1, 2002, all new digital handsets activated in the United States must be automatic location identification-enabled. This starts in October 2001, focusing on location identification for mobile 911 callers. "The mandate will drive the initial change," Bishop says. "The market will be the main force."

So beware; the future is close. In the Boston Consulting Group survey, more than 80 percent of current and potential users saw mobile devices evolving into either a travel or personal assistant. Hope you can afford that extra ticket.

"THE PACE OF TECHNOLOGICAL PROGRESS ALMOST ALWAYS OUTSTRIPS THE ABILITY OF CUSTOMERS TO USE IT."

—Clayton Christiansen, author of *The Innovator's Dilemma*



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Off the Shelf

Edited by Carol Zarrow

In the Pipeline

The Leadership Pipeline: How to Build the Leadership-Powered Company
By Ram Charan, Stephen Drotter and James Noel

Jossey-Bass, 2001, \$28.50

Why do some companies pay big bucks to headhunters, while others, such as General Electric, are famous for developing managerial talent in-house? The answer is not that GE managers are more capable than their counterparts elsewhere, *The Leadership Pipeline* argues persuasively. Rather, GE has an effective "pipeline" for developing managers within. This leadership pipeline consists of six important transitions that commonly occur in large organizations: from managing oneself to managing others, from managing others to managing managers, to becoming a functional manager, then business manager, then group manager and finally enterprise manager. Each transition requires that a manager learn new skills, broaden time horizons and define success in different ways.

The value of this book lies not in the truism that different levels of management require different outlooks and skills but instead in the detailed descriptions the authors give of each of their six stages. They include lists of the skills needed at that stage and provide diagnoses of performance problems. The one sticking point is that many companies lack senior executives qualified to mentor up-and-comers. The authors'

ultimate solution to that problem is that such companies hire outside executive coaches—a prescription that is unsurprising coming from three HR consultants.

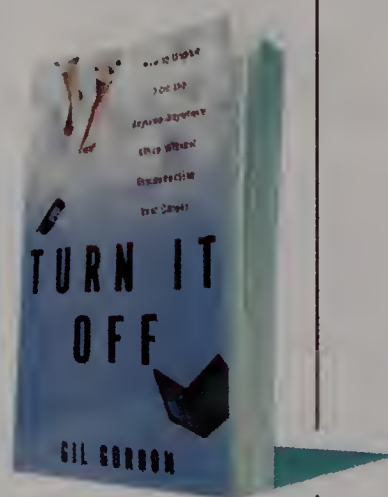
—Edward Prewitt

And...

Turn It Off: How to Unplug from the Anytime-Anywhere Office Without Disconnecting Your Career
By Gil Gordon
Three Rivers Press, 2001, \$12

The beauty—and the curse—of the technological age is that people can work anywhere, anytime. Gil Gordon says they don't have to. Among other suggestions, he proposes that workers divide their life into three categories: off-duty, on-duty and mid-duty (when they're partially available to clients). Skeptics out there are probably saying, "Sure, it's a good idea, but it's career suicide." Gordon's constructive advice to the contrary could allay such fears.

—Stephanie Viscasillas



CIO Best-Seller List

5.

When Genius Failed: The Rise and Fall of Long-Term Capital Management
by Roger Lowenstein
Random House, 2000

4.

First, Break All the Rules: What the World's Greatest Managers Do Differently
by Marcus Buckingham and Curt Coffman
Simon & Schuster, 1999

3.

The Art of Possibility
by Rosamund Stone Zander and Benjamin Zander
Harvard Business School Press, 2000

2.

Fish! A Remarkable Way to Boost Morale and Improve Results
by Stephen C. Lundin, Harry Paul and John Christensen
Hyperion, 2000

1.

Who Moved My Cheese? An Amazing Way to Deal with Change in Your Work and in Your Life
by Spencer Johnson
The Putnam Publishing Group, 1998

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What They're Reading

Michael R. Spano Sr., CIO, Siemens Power Transmission and Distribution, Wendell, N.C. Peter Cunningham and Friedrich Fröschl, *Electronic Business Revolution* (Springer-Verlag, 1999) "This book provides a keen insight into the emergence of e-business from the early roots of the Internet and a good treatise on the barriers companies will face. A light read and very informative."

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E - BUSINESS

Be Brave

DO YOU STILL distrust e-commerce? You may be afraid of hacker bogeymen hiding in the darkest corners of cyberspace waiting to snatch your credit card info. Or you can't fathom how the 1973 Evel Knievel Stunt Cycle you found on eBay could be delivered in two days. Well, the government can't regulate online customer satisfaction, so maybe e-commerce should regulate itself. The Better Business Bureau's online subsidiary, BBBOnline, tries to with the BBB Code of Online Business Practices.

The code—on the Web at www.bbbonline.org/code/code.asp—is a collection of online advertising and selling practices that the BBB believes will boost consumer confidence. The federal government supports the effort. "We were basically challenged by the government and industry to come up with a code that would give guidance to businesses that want to do the right thing," says Liz Blumenfeld, BBBOnline's director for policy and business strategy and author of the code.

But if companies don't have to adhere to this code, why bother? Because if they follow the strictures, they're likely to see customer satisfaction, says Blumenfeld. —Eric Berkman



UBIQUITOUS COMPUTING

You've Got Air Mail

By Steven Gnagni

LATER THIS YEAR, airline companies might be tempted to introduce some new slogans: Surf the friendly skies. You've got air mail. Taking the Internet to new heights.

Plane manufacturers and airlines are scrambling to offer Net access to passengers. For example, Boeing, based in Irvine, Calif., is developing a system to let you plug your laptop into a traditional RJ-45 Ethernet port and take off at speeds of 1.5Mbps transmitting data and 5Mbps receiving data. Besides e-mail and Web access—it'll also offer live television feeds and secure connections to your intranet.

The technology behind Connexion, as Boeing's service will be called, is two aero-

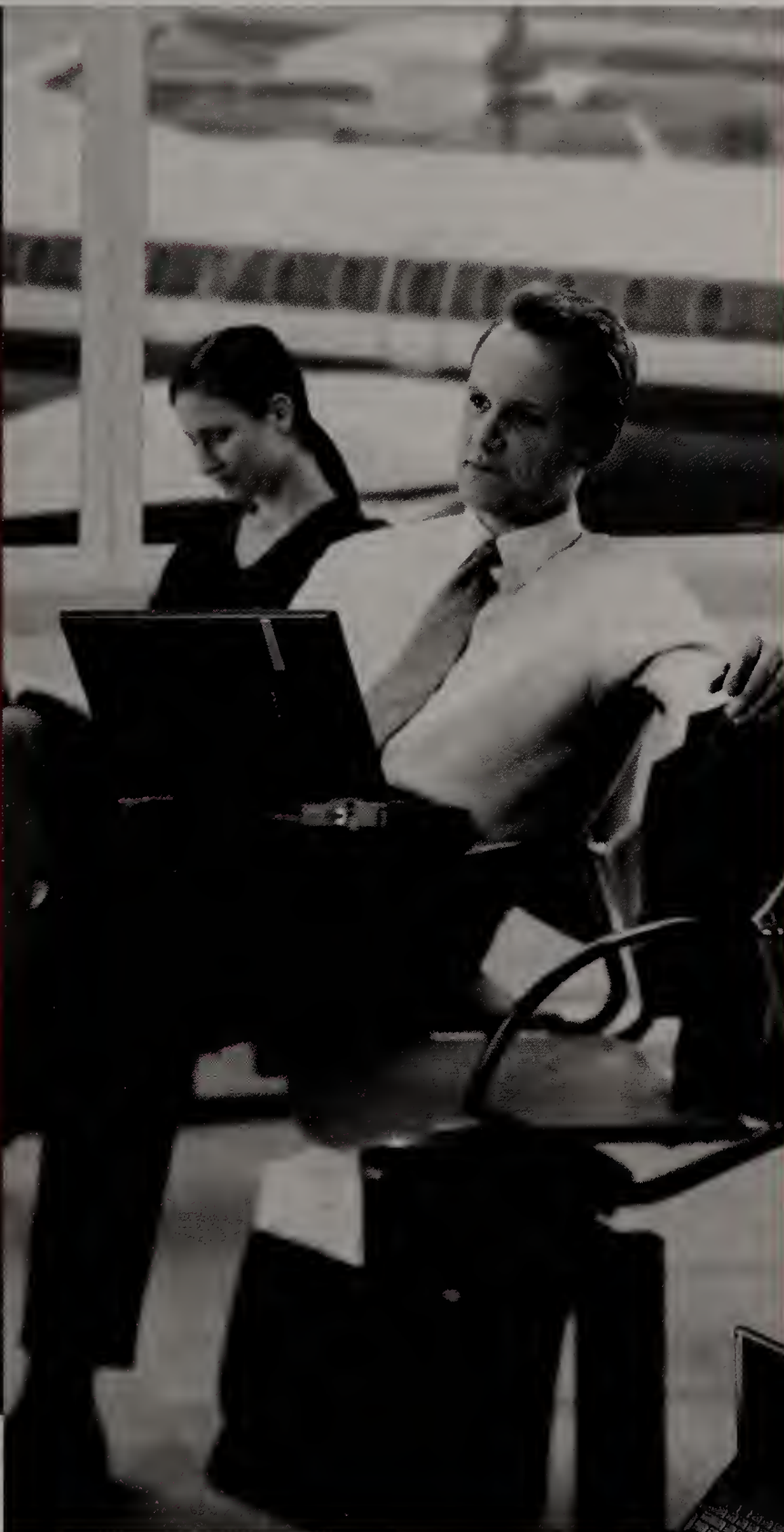
dynamic flat antennae that sit on top of an airplane—Boeing craft as well as others. It beams data to and from a satellite, and is designed to automatically respond to directional changes and maintain its connection.

You'll probably start to see Boeing's service on commercial domestic routes by late 2001. It's already been tested on business and government jets, and will eventually be available on international flights. Other companies, including In-flight Network, based in New York City, and Inflightonline, based in Fort Lauderdale, Fla., are also planning to offer similar services.

"The system is being built to meet any safety concerns," says Ric Vandermeulen, head of marketing and director of strategic alliances for Connexion. "We will be operating in a band way above cockpit communications, at 14 gigahertz." So will that mean an end to the familiar bans on wireless electronics in flight? (See "Up in the Air," *CIO*, Dec. 1, 2000.) No, it appears the real fear there is that those devices can easily become projectiles under some conditions. Now that'd be something to send an in-flight e-mail home about.

"Measuring the productivity of knowledge workers is primitive at best and downright misleading at worst. Since knowledge workers constitute more than half our workforce, improving that is the linchpin on which hangs our economy's future."

—Walter Wriston, retired chairman and CEO of Citicorp and Citibank NA



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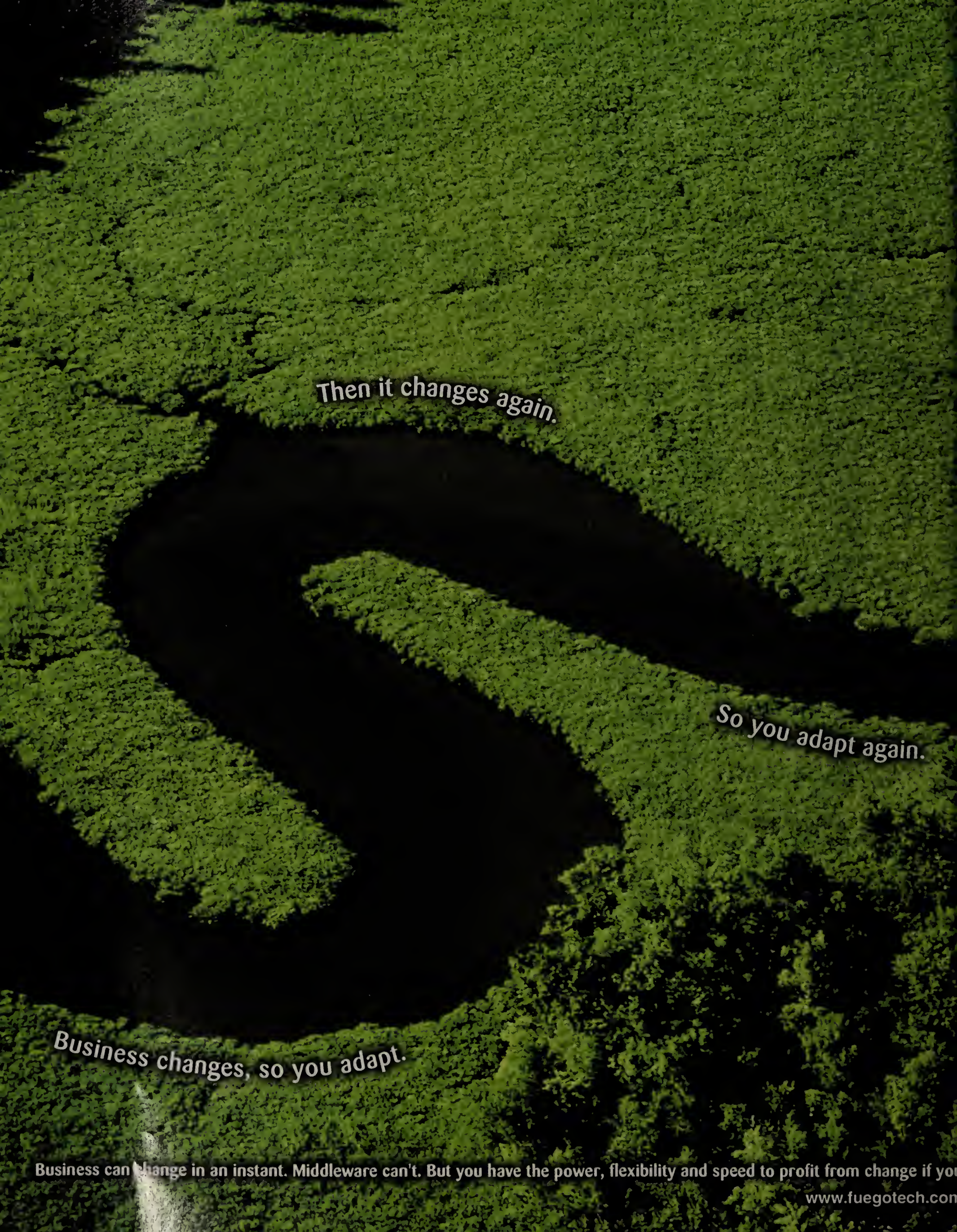
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An aerial photograph of a dense, green forest. A dark, winding river or path cuts through the trees, forming a large, irregular shape. The text is overlaid on the image, following the curve of the path.

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Get Real with John Sviokla

Creating Value in the New Economy

Listen Up!

You need to take advantage of the critical customer communications channel the Web represents

MOST COMPANIES DON'T really know what their customers think of them. And the Internet is making the feedback gap worse.

Customers, through websites, often have just as good or better information than your customer service representatives do on product information, order status and financial incentives. Most of the traditional methods for gathering feedback—such as surveys and focus groups—have become hopelessly slow now that customers have instant access to services and products over the Web. Companies need to catch customers in the act, while they are ordering on the website, to find out what they think. Capturing this feedback in context, while the customer is engaged, is critically important—it's like turbo word of mouth.

An industry is gathering around instant feedback over the Web. The industry is an extension of traditional customer response mechanisms. Organizations like the U.S. Consumer Protection Agency, Underwriters Laboratories (the UL seal of approval on appliances) and Consumers Union (publishers of *Consumer Reports*) have filtered, organized and coalesced customer opinion into megaphones capable of bringing pow-



erful companies to their knees. Take those traditional opinion mechanisms and make them faster, more convenient and always available for customers and you can begin to see the impact this industry will have on your company.

BizRate and PlanetFeedback.com (on whose board I sit) are two examples of companies that offer instant customer feedback on the Web. They make money by selling software and support to companies that want to gather and examine the onslaught of feedback that is available through the Web. BizRate's pop-up windows ask for feedback from consumers as soon as they hit the send key on a BizRate client company's order page: Was it good for you? What would you change? PlanetFeedback has an application customers can download to their PDA with names and addresses of companies, agencies and legislators so that they can air their opinions in that same turbo context.

ILLUSTRATION BY FRANCISCO CACERES

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Think about the possibilities here. You're on an airplane, angry with the rude service of the flight attendant. You whip out your handheld, ask the flight attendant for his name, and right there, using the form and the database that has the name of the company president, you log a letter of complaint with time, details and place. Hit send, and the next time you sync your PDA, the letter goes to Planet Feedback's website where the airline's record is there for everyone to see. You can also snail mail or e-mail it to the company.

Companies like PlanetFeedback and BizRate aren't just cataloging nasty e-mails, however. They are slicing, dicing and

ones—a megaphone to sing your praises and help win over others to your brand.

Good customers can also help you find problems. Many of the great technology companies, like Yahoo and Microsoft, use their lead customers to help create new products and test them. Having an instant feedback infrastructure will make it easier for these customers to help you. If you engage them, they can be the best watchdogs for your new CRM system, for example—as long as you build a culture willing to listen to that real-time feedback, good or bad.

Feedback can be a great motivator or a great demoralizer.

But you must find a way to take it in. Professor James Heskett of Harvard Business School has shown that for each complaint you receive, there are 20 unreported problems. Therefore, if you get 500 complaints on PlanetFeedback, you

So how should you deal with this new customer megaphone? The first thing is to practice engagement: Understand what customers are saying about you and who is saying it.

sorting the mountains of information into meaningful categories. For example, PlanetFeedback creates a grading system for each industry and each company within that industry from A+ to F-. I hear the average grade is somewhere near a C. Not only do companies have grades, but the top compliment and complaint categories are exposed for all to see. For fast-food restaurants PlanetFeedback structures the questions to include things like attitude of the wait staff, quality of the food and cleanliness of the restaurant. Of course, you can also have your own unconstrained opinions as well. PlanetFeedback also keeps tabs on which companies are responsive to customer communication and which are not.

So how should you deal with this new customer megaphone? The first thing is to practice engagement: Understand what customers are saying about you and who is saying it. For example, PlanetFeedback had some evidence of complaints about Bridgestone/Firestone tires before the story of shredding treads broke. Monitoring the comments about your company can be an early warning system, which can tell you about your product or service problems before they become big. You can buy or build an instant feedback mechanism for your own website to track opinions. You can also hire the instant feedback sites to slice their feedback to fit with your own internal measures and goals. For example, McDonalds could gather feedback on Burger King, comparing store performance by region.

Though customers will have a natural tendency to complain through instant feedback, there should also be some compliments. Gathering the good along with the bad means you can give good customers—who tend to talk less than bad

know that your customers may have had more than 10,000 problems! It is often painful to look at this data, but denying it will not make the troubles go away.

Remember that we are entering the age of the scarce and scarred customer. Real prices in many consumer categories, such as washing machines, cars and stereos, have seen little price increase in real terms during the past 10 years; in some areas—cars, TVs, clothing and sporting goods, for example—there have even been price decreases. Technology (including the Internet) has brought tremendous competition by allowing customers to see price and supply across many different markets. Technology has also made businesses more productive, which means they can give the customer more for the same dollar. In other words, demand is not keeping pace with rises in productivity and capacity. One way to get more of this shrinking pool of demand is to get customers' feedback at the moment they want to give it.

The greatest shortage we have in today's economy is not spare parts or raw materials, it's feedback. Whether we like it or not, customers are more in control now than they have ever been. They will not only demand more for less, but they will give you a grade on your CRM during the process. The question is, are you driving for an A or are you going to slide by with a "gentleman's C"? 

What feedback do you have for John Sviokla? E-mail him at getreal@cio.com. Sviokla is vice chairman of DiamondCluster International, an Internet strategy consultancy based in Chicago.



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HIRING, FIRING, INSPIRING

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Stewart Friedman, director of Ford's Leadership Development Center

Can Ford Clone Leadership DNA?

Ford injects thousands of managers with total leadership training

BY DAVID T. GORDON

Got a great management story to tell? Send it via e-mail to Management Editor Edward Prewitt at hotseat@cio.com.

ARE LEADERS BORN OR MADE? Ford Motor Co. has sidestepped that chestnut in creating its new Leadership Development Center (LDC). The LDC's motto, "Creating new leadership DNA," implies that leadership is both

hereditary and subject to schooling. The center aims to bring to the fore the innate leadership skills of Ford managers from across the company.

Around 1,380 managers are currently taking part in the sec-

ond iteration of the LDC, which launched in 1999. About 2,500 managers went through the curriculum last year. The program's conceptual framework is "total leadership," an approach that emphasizes team development,

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MARKETING

e-business or a dotcom pioneer, chances are it needs a whole new marketing and technology strategy.

YOUR STRATEGY must keep your company in front of customers in innovative and cost-effective ways. It must respond to each customer's interests and needs—regardless of the means that the customer chooses for contact. And it can't be done without a lot of help from the CIO.

Staying competitive entails much more than website-enabling your organization's marketing efforts. It involves strategically massing key technology forces—including the Web—into a new marketing infrastructure that manages the ways your organization acquires, develops and retains all of its customers, all of the time. The future of your business depends on it.

Why? Because the nature of customer interactions is undergoing a transformation so profound that the way business is conducted will never be the same.



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INNOVATION

It's About Delivering What Customers Want

For virtually every kind of business, marketing is changed forever, thanks to two dovetailing events.

Widespread use of the Internet has changed how customers expect marketing to work. Because customers now enjoy almost instant fulfillment of online requests for information, products and services, they've driven marketing into real-time. That means old, linear ways

of creating and responding to demand—building it, forecasting it, scheduling bulk production and shipment from suppliers, and so on—are no longer cost-efficient or competitive. Companies must now become responsive to the explicit and implicit needs of their prospects and customers.

Previously, businesses pushed marketing and sales information toward customers. Now companies must allow customers to pull the

marketing information they want, when they want—and close the sale on their terms. All this means is that in order to be successful, companies must change how they interact with their customers, and thus how they conduct marketing activities.

Technology breakthroughs offer new ways to create and meet customer demand. The rise of the Internet, both as a new marketing medium and a ubiquitous communications mechanism, has thrust the marketing function into the center of business. As a new marketing medium, the Internet and its associated marketing technologies have made it possible to cost-effectively communicate with smaller and smaller segments of customers. In fact, it's now technically and economically possible to create marketing dialogues with individual customers and prospects—and to measure the ROI of such dialogues. As a communications mechanism, Internet technologies act as a "connective tissue" within companies, linking historically disparate marketing, sales and service functions. De facto standards, such as HTML, TCP/IP, XML, ever decreasing network costs and the ubiquitous browser user interface, have simplified the work needed to connect sales, marketing, operational systems and data.

These days, companies need to move products, services and information faster, as real-time demand requires. This shifts the organization's focus away from production processes and toward customer processes.

Now, companies' ability to thrive depends on capturing appropriate customer data from every point of customer contact, from order entry to fulfillment—including website clickstreams, e-mail, telephone, fax, call centers, kiosks/stores, resellers and direct sales forces.

That customer data must be morphed into valuable information about each customer's role, interests, needs, and ability and willingness to buy. This enables companies to individualize their responses to each customer during each customer interaction—regardless of which customer touchpoint is used. When marketing innovation is successful, every interaction with a customer or a potential customer becomes a direct or indirect sales opportunity. This begins to erase conventional distinctions among sales, service and marketing.

Few organizations have constructed the marketing technology infrastructure necessary for this new kind of marketing, but it's clear that for just about all businesses the competitive future depends on an immediate commitment to marketing innovation. A commitment that leverages the opportunities proffered by the changing dynamics of technology and customer demand. To move slowly or not at all is to forfeit the future to more nimble rivals.

Enter IT

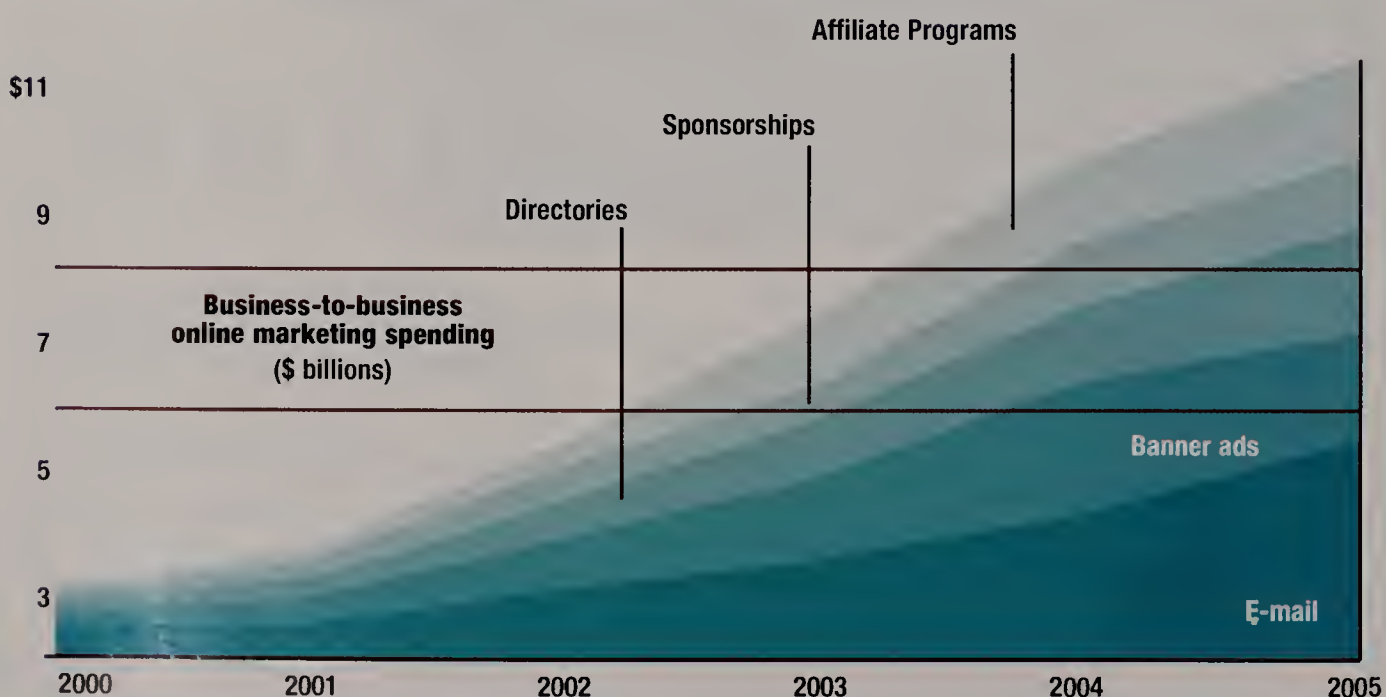
Successful marketing innovation in customer interaction cannot be accomplished without the direct involvement of—and changes to—an enterprise's information technology infrastructure.

Virtually all of the functions that were once exclusively within the purview of sales and marketing are now influenced by technology considerations. Permission-based e-marketing, campaign management software, and analytical, predictive and individualization tools shape how customer prospecting is done. And customer contact and cross-selling efforts have been transformed by channel extranets, sales-force automa-

tion systems, point-of-sale data collection, data mining applications, data warehouses, data marts, and analytical, predictive and personalization tools.

In many enterprises, these various technology initiatives—and others dealing with call center, fulfillment, logistics and billing operations—serve an assortment of customer touchpoints without coherence. Some are legacy operational systems still essential to the enterprise that must be reconceived and rebuilt without shutting down the business. Others are

Online B2B Marketing Budgets Hit \$10.1 Billion in 2005



Source: Forrester Research

isolated departmental applications optimized for a single channel or touchpoint. Applications like these must be modified for a distributed data architecture in which the right customer, product or interaction data is made available to the right touchpoint. Still others—too many of them websites—were constructed beyond the supervision of IT by operational staff oblivious to the architectural principles on which robust applications rely. These too must be upgraded to meet IT's quality, performance, scalability and maintainability standards.

What's required, then, is a technology infrastructure that's designed for the deep customer communications support on which marketers depend. This is best delivered with a new customer-centric, marketing infrastructure in which customer touchpoints, customer-interaction business logic and customer and content data are separated, yet interconnected. Creating such a customer-centric marketing infrastructure typically requires development of an overall, marketing-aware technology strategy comprised of three stages:

1 DEVELOP A CUSTOMER-CENTRIC DATABASE STRATEGY

An effective customer-centric database strategy requires that data from multiple customer touchpoints be gathered over extended periods of time. If done well, the ultimate result is the creation of a customer-interaction database—which contains not only data about the customer (name, address, company) but also data about how the customer transacts and works with the enterprise (clickstream, role in purchase, preferred purchase channel).

Dealing with multiple sources of customer data. As the primary focus of the enterprise moves toward the customer, legacy databases organized around products, services, geographies, transactions and channels must be redesigned to support a unified view of past and present customer interactions.

Executing against a customer-centric database strategy is a difficult task. For example, customer databases are often populated with data extracted from legacy systems. The process of extracting and maintaining this legacy data can be expensive and often includes:

- Legacy data archeology (finding the right data).
- Legacy data transformation and cleansing (since few enterprises adhere to data standards, extracted data often must be reworked so that it's usable by the customer-interaction database).
- Building the data models and metadata repositories to support the necessary analysis of this legacy data.

Customer names and addresses are typically lengthy, and companies often maintain name and address variations. When these are combined with customer demographics and interaction histories, database storage requirements can become gargantuan. Upload size

Internet Impact

B2B

- Most research organizations estimate that somewhere between 90 percent and 97 percent of all U.S. businesses are connected to the Internet.
- Perhaps a third of those are engaged in e-commerce—that is, buying and selling online—and that number is climbing fast.
- The consensus is that in just a couple of years, almost three-quarters of U.S. businesses will be engaged in e-commerce.
- Forrester Research predicts that by 2005, B2B online marketing budgets will grow to approximately \$10 billion, from \$4 billion today. This will comprise activities such as e-mails, affiliate programs, banner ads and sponsorships.

B2C

- In 2003, the worldwide adult population will be about 4.1 billion, according to IDC, and almost 15 percent will be Internet users.
- As of 2000, believes Jupiter Communications, 52 percent of households in the United States used the Internet; by 2003, more than two-thirds will.

grows—leading to longer upload times, thus reducing the time the systems are available for business users.

Finally, designing customer-centric databases takes substantial business as well as technology planning. What real business value will the database deliver? Answering that question will help scope the effort and avoid problems. For example, to keep a customer-interaction database manageable, data can be partitioned to exploit parallel database technology and parallel processing techniques. However, partitioning data by geographic region when business needs dictate a partition by customer income level can trigger database system hot spots that hinder performance.

Integrating the clickstream. A successful customer-centric database must also capture and use clickstream data. Clickstreams, which record every mouse click or keystroke of every website visitor, offer companies a chance to develop detailed records of customer interaction.

In addition to purchase transactions, clickstreams include information about products and pricing viewed, questions asked, alternatives compared, last action before leaving and much more. Capturing, storing, analyzing and mining clickstream data and integrating it with customer data from other sources can help companies complete the unified view of customers and prospects that they crave.

Even B2B companies with a relatively small customer base can benefit from capturing and analyzing clickstream data because of the detailed knowledge they can derive about each customer's and prospect's preferences. This kind of detail enables marketing to evolve beyond shallow-and-broad promotional efforts and target appropriate information and offers at specific customers and prospects. For example, a large equipment manufacturer may initiate a live online sales dialogue once a website visitor spends more than 15 minutes reading product specs on certain high-end equipment. This helps enhance the value offered to each customer and prospect while also improving return-on-marketing investment.

Currently, most clickstream data analysis is operationally oriented—analyzing traffic and usage patterns to figure out better ways to meet customer and prospect response-time objectives. The challenge is how to derive from large amounts of detailed clickstream data the kind

of business knowledge needed to strategically approach a customer or prospect. This kind of knowledge—which helps build long-term relationships with constituents—comes from mining large quantities of customer data.

Some suggest that companies do not need to keep every clickstream bit and byte, as long as the data is properly analyzed up front in a multistep process that includes these steps:

- *First, define how marketing wants to use the clickstream.* This may mean starting with a small, relatively simple clickstream analytics project and learning from it before building out a larger clickstream analytics system.
- *Next, collect, parse and transform the clickstream data and discard some of the less meaningful information.* Then summarize what remains and store this in a database for a period of time. The yield: a summarized clickstream that can be further aggregated—or cubed—using online analytic processing (OLAP) techniques.

J.P. Morgan Partners with Wheelhouse to Get Whole Story on Clients

A respected leader in the financial services industry, J.P. Morgan Chase & Co. has always been at the forefront of technology innovation. In 1999, the company embarked on an initiative to determine how to transform its business model in order to best capitalize on the revolution created by Internet technology. Part of this effort resulted in the creation of LabMorgan, which identifies, implements and invests in e-finance ideas that shape the future of financial services.

"LabMorgan is a catalyst for change," says Mohit Gupta, a J.P. Morgan Chase vice president. "We are actively investigating how to utilize e-technology to change our processes, improve productivity and effectiveness, increase our revenue base, launch new companies and commercialize our technology. And we are currently working with other J.P. Morgan Chase business groups to come up with new ideas, implement cutting-edge technology as well as manage the resulting change."

One of the most important projects LabMorgan has undertaken is the development of J.P. Morgan Chase's Client Knowledge Engine (CKE)—a tool that when fully implemented will provide J.P. Morgan Chase professionals with an aggregate view of a client's portfolio.

"The problem for J.P. Morgan Chase, like most organizations today, is that critical information about clients is scat-

tered all over the company in different databases and applications," explains Gupta. "Information is unstructured, with no method available for capturing a holistic view or profile of the client. But our goal is to become an organization with a total customer view—a customer-centric view. We want to be able to proactively mine data and translate that into knowledge, which translates into a revenue growth engine for the firm. CKE will proactively identify opportunities for J.P. Morgan Chase's marketing and sales professionals, presenting leads for cross-selling opportunities and enabling them to offer better customized solutions for clients."

Wanted: Services Company with Personal Touch

Not surprisingly, with a project as important as CKE, there was pressure on LabMorgan to get CKE up and running.

"We had an idea of what we wanted to do, time to market being an important factor, but we didn't have time to go through the process of recruiting in-house staff and get them up to speed—we wanted an implementation within six months," says J.P. Morgan Chase Vice President Emilia Mihel. "We quickly made the decision to bring in a consulting company to help us sort it out. We had experience working with many of the larger consulting companies, but we wanted to try something new and decided to look at some of the smaller consulting firms. Because of the innovation—and risk-taking—associated with this effort, we needed a company that could really partner with us on the project."

According to Mihel, the scope of the project included defining the functional requirements of CKE and putting together a high-level architecture. Once the vision of CKE was scoped out, specifically defined functional requirements and services would need to be identified, as would the details of the technical architecture and subcomponents of technology and vendors for J.P. Morgan Chase to evaluate. And after looking at a number of compa-

■ *Finally, process full clickstream detail (using parallel processing techniques to cope with the volume in reasonable amounts of time).* Then join it with other customer data to build individual customer and prospect profiles that can be stored in a database where they're available for analysis. The clickstream data itself is not always retained, just the by-customer analysis.

Others say it's important to capture and retain full clickstream data for an extended period, integrating it with data about customers, products, websites, site performance and so on in order to create business insight. After all, it can take months or even a year for customer relationships to achieve profitability and exhibit signs of continuity. As such relationships evolve, an enterprise can mine the data associated with good customer relationships to determine how to replicate the phenomenon with other customers—something that cannot be done without an extended clickstream history integrated with

other data sources into a customer-interaction database.

Managing "content." Your database plans need to include not only data about your customers and prospects, but also for your customers and prospects. Product spec sheets, customer service information, order status and special offers are all content that need to be managed and then presented at the right time. Further, content databases must be developed in a manner that makes it easy to change the content and keep it up to date.

2 BOOST CUSTOMER DATA ANALYTICS CAPABILITIES

To understand and anticipate the behaviors of customers, analytic functionality has become essential for corporate survival and is often the power behind today's marketing campaign software.

These business intelligence tools rely on mathematical algorithms and programmed business rules to compare

data and answer evaluation queries. Marketers can use these tools to derive information from streams of customer-interaction data and then feed it back to websites and other touchpoint systems, automatically modifying the way these touchpoints interact with customers and prospects. Examples of personalized customer interactions at different touchpoints developed with marketing analytic tools and customer-interaction data include:

- *Proactive, individualized webpages incorporating predictive models to drive real-time recommendations.* On a company website, such pages can help guide customers through purchase choices, boosting sales results and promoting customer loyalty.
- *Call center sales agent screens, updated with offers and information appropriate for the customer on the phone.* These help increase customer satisfaction and sales.
- *In a B2B environment, recognizing the customer's role (such as purchaser, influencer, user) at the time of interaction, via online or offline touchpoints.* This allows just the right information to be presented to accelerate a sale or retain the customer.
- *Web and e-mail promotions that can be automatically delivered by certain triggering events, like opt-in agreements, trade show attendance or predefined rules concerning customer responses in other interactions.*

nies, LabMorgan chose Wheelhouse.

"Wheelhouse did a very good job of understanding what we wanted from this effort," reports Mihel.

Laser-Sharp Focus on Marketing

"In terms of their expertise, I would say one of the advantages I've seen with Wheelhouse is its focus on e-marketing and client relationships," reports Gupta. "Their knowledge of the tools and technologies in client relationship is one of their assets. Having that kind of focus obviously helps them bring the expertise to the client—as well as the experience and knowledge from similar projects they have done. A lot of the integrators out there are all over the place, ranging from client relationship management and supply chain management to ERP. What Wheelhouse offers is a laser-sharp focus on the marketing side."

"I appreciate that they embrace our feedback," adds Mihel. "Wheelhouse is definitely interested in understanding our needs and issues and responding to any concerns. They've been very accommodating. One of their strengths is meeting deadlines, and this project has a tight deadline."

With the first release of CKE under its belt, LabMorgan is looking to roll out monthly releases to strengthen CKE's functionality.

"The vision of CKE is very comprehensive and far-reaching," says Gupta. And it doesn't stop at just collecting client profiles. LabMorgan is looking at how CKE can improve collaboration using client knowledge, data mining and proactive lead identification, as well as how it can improve client analytics. Once CKE is completely implemented, J.P. Morgan Chase will have better personalized content, advice and solutions.

"We can cross-sell, bringing the bank's full products and capabilities to the customer," offers Gupta. "Most important, we will be able to proactively understand our customer's needs, improving J.P. Morgan Chase's long-term relationship with its clients. There's a lot of value CKE is seeking to provide, and Wheelhouse is helping us reach our goals for CKE."

In fact, LabMorgan has been so pleased with Wheelhouse, it has already referred the company to other groups within J.P. Morgan Chase. ■

- *Event management* for seminar and trade show registration including follow-up material distribution and survey processing.

To be effective, today's analytic engines need to support the following business analyses:

- Which customers generate the greatest sales revenues and profits?
- What are their buying habits—where, when and how do they buy?
- What are likely to be the most effective ways to target customers for future product or service sales?
- Which products or services are likely to create cross-sell or up-sell opportunities?
- How effective are website content and traffic patterns in meeting sales and service goals?
- What is the ROI for a particular marketing campaign?

Today's real-time, up-to-the-moment marketing often requires that legacy analytic capabilities be transformed from batch paper reports into business rules that are intelligently cached in system memory to drive real-time recommendations at any interactive customer touchpoint.

It also means that marketing program concepts about the customer—such as market segment, channel of distribution, customer role in the purchase process—need to be embedded into, or overlaid onto, existing systems. And closed-loop measurement systems must be constructed to allow rapid refinement of marketing campaigns. This often requires new levels of integration between systems and data that have not been previously linked.

3 EXCEL AT CUSTOMER-INTERACTION TECHNOLOGIES THROUGH MULTIPLE CHANNELS

The technologies and applications used for interacting with customers yield competitive advantage and extremely high value.

But to be effective, these technologies and applications must be integrated so that a company can first create a single view of its customers across all channels and touchpoints and then coordinate multi-channel marketing messages with precision and speed.

Integrating applications and marketing processes. The requirements for targeting messages to customers

across multiple channels affect marketing infrastructure. The communication between applications takes the form of data and process, which both require careful integration and coordination. For example, a marketer will often initiate a marketing promotion simultaneously through multiple channels (such as the call center, website and out-bound e-mail). The customer, however, may choose to respond to this marketing promotion through a channel other than the one they used to receive the offer. Supporting this type of multi-channel interaction, and allowing ROI to be measured, requires integrated marketing processes and systems.

An increasing role for Web servers. Consider, for instance, Web servers. Just a few years ago, Web servers offered little more than “brochureware” and got little, if any, attention from IT. But as customers have moved to the center of corporate business strategy, Web servers have

Managing Content with XML

One of the ways to make the Web more efficient for customers and enterprises alike is to build webpages using XML.

XML-based Web content management and delivery systems can help integrate, manage and communicate information in real-time. Here's why:

- **Better searching:** Because XML can be used to uniquely tag data, a search application doesn't need to understand the schema of every database it searches; for instance, a customer can ask for books *about* Mark Twain rather than *by* Mark Twain.
- **Combines disparate data:** Once a search engine or an agent finds data, XML can deliver it to a browser or other applications, objects or servers for further processing. XML also allows structured data from disparate sources to be easily combined, then delivered to browsers or other servers for further processing, aggregation or distribution.
- **Metadata advantage:** Since XML describes data itself, different views can be displayed dynamically according to the author's wishes or according to user preferences, browser configuration or other criteria. XML data can be locally parsed and edited, since the data is separate from the user interface that views it; computations can be performed at the browser on XML data without additional transmissions to the server.
- **Granular updating:** XML eliminates the need to resend an entire structured data set every time a part of the data changes; just the changed elements need to be transmitted from the server, and the changed data can be displayed without a user interface refresh. What's more, with XML, additional data can be streamed in to a user's existing view without the browser having to rebuild the view.

These capabilities, along with the fact that XML compresses very well, reduce server traffic and browser response times. XML-enabling the enterprise means:

- Converting legacy data to XML format.
- Developing new XML-structured data and merging that with converted data.
- Establishing techniques to manage XML-structured data.

become mission-critical, the new locus of corporate IT.

So Web servers and other connected servers—such as database, directory and e-mail servers—need to be redesigned, monitored and maintained for high availability, fault tolerance and response capability. That means understanding the interdependencies among these services. It also means understanding the enterprise's Web content and its dependencies on various services. For instance, confirmation messages that get e-mailed to website visitors may depend on e-mail services. Or a Web storefront's catalog may rely on a database server to display current items and inventory.

Traffic between the customer-interaction database and Web servers, as well as other operational databases, will affect an enterprise's network infrastructure—especially as real-time or near-real-time information gets delivered to customers, customer service agents, salespeople and supply chain partners. Organizations with large customer-interaction databases that support real-time individualization will likely want to locate Web servers and databases near each other to enhance response time.

It's 10 p.m.—do you know where your network is? To make sure you do, it's critical to ask and answer some key questions: Does your network have sufficient bandwidth now and for the future—especially during peak load periods? Can you manage the data and processes needed to integrate distributed customer touchpoints? Is access to marketing data and systems easily available for marketing professionals? Are you prepared for wireless interaction with customers? What about security? Will your database architecture scale to meet increasing customer demand?

Answering these questions often leads to the realization that current networks and Web servers are inadequate and new kinds of higher-powered Web hosting alternatives are necessary.

For many organizations, the architectural demands of creating an infrastructure supporting such marketing innovation are too great for the turnaround that today's fast-paced business climate demands.

Constructing a customer-focused marketing technology infrastructure that can evolve with the marketplace requires high uptime, standard platforms and interoperability. Also, without well-designed systems that implement open standards and can be easily integrated with other software and platforms, management and maintenance costs quickly spiral out of control. This kind of architectural approach to the technical aspects of marketing innovation is simply beyond the capabilities of most marketing people.

Thus as the enterprise becomes customer-centric and engages in marketing innovation, IT grows in strategic importance.

Shortages of IT resources. In many organizations, the bulk of current IT resources—as much as 80 percent by

Experts in Customer Marketing Database Design Offer Other Suggestions:

- **Understand marketing and sales needs.** Begin by ensuring that your database architects have a good idea of what the two departments need, how they'll use the data and when they need it.
- **Build a unified customer view** from the customer and prospect data sources scattered through the enterprise's operational systems, ensuring that your customer view maintains detailed information about each customer's interaction with the enterprise—including purchases, shipments, payments, requests, complaints and returns—and is adapted to manage large customer volumes.
- **Isolate detailed customer contact information**, which is not dimensional by nature, and then redundantly model dimensional contact data (such as area code or state).
- **Create dimensions for critical demographics**, customer profile attributes and critical facts.
- **Be careful designing extraction and transformation processes**, making sure there's a persistent numeric key for customer identification.
- **Ensure that the database can support multiple marketing activities**, including data mining, modeling, statistical analysis, scoring, ad hoc analyses, campaign execution systems, and applications that manage telemarketing, direct mail and mass e-mails. And because these marketing efforts are iterative, the database will have to track and analyze marketing activity results based on responses captured in operational systems, and then perhaps be refined as new requirements become known.

some measures—are by necessity devoted to maintaining still-essential legacy and operational systems. This, combined with the predicted shortage of technical staff (IDG estimates that by 2002, technical positions will outnumber available staff by 500,000), makes it difficult to attract the skilled technical people needed for competitive innovation. Some skills—such as domain-specific data mining expertise; developing a Web-based infrastructure based on three-tier use of relational databases, high-level languages and integration frameworks like XML and Java, emerging fiber/hosting/WAP network platforms; and in-memory logic and data staging to support real-time sales and marketing—are best amortized across many organizations.

Fortunately, professional services companies of many stripes and types—including systems integrators, appli-



Brian Carty, Wheelhouse CEO, and Frank Ingari, Wheelhouse founder and chairman, lead Wheelhouse in providing its clients with marketing innovation through the strategic application of technology

cation service providers (ASPs), managed service providers (MSPs) and the like—can be counted on to help design and build the marketing infrastructure elements an enterprise needs to stay competitive. Even if you opt to eventually move all marketing technology and applications development in-house, professional services and applications management companies can help you get started and develop momentum.

Rethinking Help from Outsiders

Professional services companies and applications management companies, working closely with the leading suppliers of marketing systems, can often help you and your marketing department quickly launch a full range of innovative, cost-effective and measurable marketing activities. Because of marketing-technology-domain-specific expertise, these companies can often help you move more quickly than you can working on your own.

Staying Focused on Core Competencies

Turning to outsiders to help develop a marketing technology infrastructure doesn't mean you have to cede control or forfeit your strategic edge.

Even the largest organizations have come to understand the value of identifying and focusing on core competencies and then outsourcing other activities to domain specialists. What's more, the right professional services and applications management companies have developed practices and techniques to ensure that you co-manage and co-create the marketing infrastructures that are critical to competitive success, thanks to:

- Marketing technology infrastructure development and design customized to your organization's needs.

- Established procedures that enable you to monitor performance and results.
- Staging capabilities that ensure all infrastructure elements are working before they're installed for production and handed off to your IT staff.
- Training that keeps your IT staff and marketing staff on the leading edge.

What to Look for in a Marketing Infrastructure Services Company

Start by finding a professional services company that fields teams comprising both technical and marketing experts.

These professionals should work closely with each client to understand where it is today and where it wants to be in the future. Then this understanding should be used to develop appropriate strategies, marketing techniques and technology implementations to achieve the client's goals.

Also look for a company that has the right mix of skills and experience to meet your specific needs, such as:

- *Real-world experience in developing and managing marketing programs*, including consultants who have worked in line marketing roles, have delivered integrated online and offline marketing programs, and have done this in a variety of industries.
- *Marketing technology architecture planning and design capabilities*, including defining business and functional requirements, knowledge and hands-on experience with a wide variety of Web-based CRM, database, content and analytic products, and large distributed customer database design skills.
- *Marketing technology implementation*, including experience with deployment of marketing programs and systems, evaluation of early results and provisions for knowledge transfer to the client's staff.
- *Customer and marketing analytics skills*, which means consultants who understand how marketers measure program success, when and how to refine marketing programs, how different analytic tools can be used to better understand customers, and how to apply modeling techniques to create better, more profitable customer interactions.
- *Marketing systems staging capabilities*, either at the client's site or the professional services provider's staging facility. The company should have a deep knowledge of systems, databases, Web servers, networks, monitoring tools and performance measurement techniques.
- *Applications management services* that handle remote management, monitoring and measurement of client marketing systems and programs.

Wheelhouse can help you create and manage the marketing infrastructure on which your customer interactions must be based thanks to extensive and ongoing investment in the right skills, tools and technologies.

IT and Marketing Working Together, Best Practices in Marketing Innovation

While each organization's technology infrastructure and marketing requirements are unique, there are some key best practices that can help every organization succeed at 21st-century marketing innovation.

Move to Highly Dynamic Integration Architecture

One-to-one marketing exerts unique demands on data architectures and application infrastructures. From the data perspective, the asynchronous, dialogue-based requirements of one-to-one marketing necessitate a system that minimizes latency and allows for complex, rules-based recommendations. The traditional closed-loop environment—where an entire circuit of activity, from message to response to new message, takes weeks or months—is now compressed to days, hours, minutes, seconds and milliseconds.

In this environment, a data warehouse architecture rapidly breaks down, and the critical point of integration shifts from data to process, storage to logistics. In addition, because activity is typically controlled by more than one application, the ability to share data regarding response preferences rises to a new level. Application integration technology heavily focused on just-in-time data delivery becomes a baseline requirement.

Design Marketing Programs and Capture Data to Measure Incremental ROI

Because several marketing efforts—such as dynamic content, e-mail campaigns and cross-sell promotions—can be launched simultaneously, it can be tough to discern the incremental contribution of each effort to the overall ROI. So whenever possible, rigorously test marketing program designs to understand the magnitude of each tactic's success (or failure). Set up a randomized control group. Understand the base performance of your segments before you tailor content to serve them.

Gather Customer Data Through Observed Behavior and Declared Data

Every interaction with customers is an opportunity to learn more about them so that the next interaction can be even more relevant. But all customer data is not created equal—some can help meet the challenges of today's marketing and some can't.

Start by creating a strategy for collecting the information you want to have about customers. Then determine whether there are already opportunities to gather and store this information. For data that's not currently available (such as interests, future purchase plans and use of competitive products), rank the data elements and determine when it's most

appropriate to ask customers for some of this information.

When asking your customers for information, make sure you're asking them questions that will help drive your marketing effort. And be sure to offer something in return for responding to the request for information. Then begin to organize and store this information in a customer database so that it'll be readily available when it's time to refine segments and target offers or relevant content.

Monitor Customer Needs and Satisfaction

Ask your customers how you're doing. Be sure you provide an easy way for customers to express their concerns and needs. Conduct regular research on overall customer satisfaction. Acknowledge any mistakes or inadequacies, and use your response to rebuild loyalty.

Make it convenient for customers to give you feedback, and respond to all feedback messages promptly and appropriately. Make sure that customer feedback is reflected in future interactions. If a customer articulates a preference, respect it.

Make Dialogue Interactive and Personalized

It's important to make customers feel that their needs are being met and they're not just being marketed to. Therefore customer interactions must be dialogues fueled by your knowledge of their individual needs and past relationship with your company.

Because each customer has different needs and a different past relationship, each dialogue should be personalized and relevant to that customer. This means making sure that the level of personalization is appropriate for each individual—even each individual in a company group that collectively represents one customer. Some excellent customers may prefer to have highly personalized interaction, while others may prefer to remain more anonymous.

Make Interaction Seamless

While the Internet is an increasingly important mechanism to communicate with customers and prospects, it's unlikely the only way your company does business with its customers. Therefore, it's imperative that all transactions and interactions are facilitated through every channel and that the burden is not on your customers or prospects to bridge the gap from channel to channel. Remember that your customers see one—and only one—organization, whether they're on your website or talking to a customer service rep. So don't ask a customer talking to a customer service rep to repeat information that was already submitted to your website, and don't ask for an address on your website if entering an account number should yield the same information. ■

With Wheelhouse's Help, VoiceStream Wireless Develops a Multidimensional E-Architecture

VoiceStream Wireless is the nation's fastest-growing provider of all digital personal communications services, or PCS. Indeed, once recent mergers with a number of wireless providers are complete, VoiceStream and its affiliates will own licenses to provide service to 90 percent of the United States in 24 of the top 25 markets. These mergers will enable VoiceStream to continue to "give customers more minutes, more features and more service than any other wireless provider." And that's not only the company philosophy; in a market like VoiceStream's, it's necessary for survival.

Needed: A View from 30,000 Feet

"We are in a very competitive market," says Lucy Hoffa, executive director of customer relationship marketing and interactive systems, or CRMiS, at VoiceStream. "We need to be faster and more sophisticated in how we arbitrate offers and the types of offers we make. To do that, we need to have an environment that will let us get there. That's when and why we contacted Wheelhouse... they could help us get a view of things from the 30,000-foot level. I didn't need a consultant to come in and tell me what my marketing strategies should be—I already know. I needed someone who could come in and work with my database staff to

deliver what would be the ideal architecture and software development environment for us to execute more sophisticated, more multidimensional programs for VoiceStream. With Wheelhouse's help, VoiceStream is developing just such a multidimensional e-architecture."

According to Hoffa, Wheelhouse's experts and expertise are being used to design functional and logical data model requirements based on VoiceStream's needs, as well as to put together an RFP for VoiceStream's new campaign management system. Wheelhouse is also working with the VoiceStream team that's actually building the data mart. And while Wheelhouse is not dictating

the building of the mart, the company is, says Hoffa, "keeping an eye on it to make sure that when we ultimately do move to a data warehouse our throw-away is minimized. They're helping us keep our vision of what VoiceStream really needs out of the data warehouse our IT group is building.

"When completed, we will be able to increase customer stickiness, direct more campaigns, provide a better experience for the customer and manage the customer relationship better," continues Hoffa. "All of which, hopefully, results in more revenue for VoiceStream. Moreover, we should see a decrease in customer care calls to the call center because we can get campaigns up faster. If you get it up on the Web and give customers and prospects all the information they need to make a decision, they don't need to contact the call center with questions about pricing or a promo. It makes us more proactive with our customers."

Wheelhouse Service Offerings

These high-end services are the fusion of marketing and technology expertise. Wheelhouse works closely with its clients to understand their marketing objectives and challenges, and envision how they can more effectively build and manage customer relationships. Then clients are given recommendations for the right set of marketing strategies, techniques and technologies to support their objectives. Wheelhouse consultants bring real-world marketing and technology expertise to client engagements, and leverage the company's Applications Management Center (AMC) to deliver implementation and management services. This is a professional services company with a strong belief in knowledge transfer, and training and empowering clients to enable them to carry their marketing initiatives forward.

Wheelhouse helps its clients meet their business and marketing objectives by offering three main categories of services:

- Marketing and technology strategy services
- Technology and data implementation services

- Applications and customer interaction management services

Marketing and Technology Strategy Services

Wheelhouse helps its clients develop strategic roadmaps designed to rapidly achieve marketing goals and architect the technologies they will need to support them. Services include:

- Multichannel customer interaction strategy: recommending ways to build and maximize unified customer relationships across online and offline marketing, sales, partner and support channels.
- Web properties strategy: auditing the current state of the client's websites, including content, functionality and data capture capabilities; designing a roadmap for multisite integration and optimization of the Web as a core marketing channel.
- Program design and ROI analysis: designing customer acquisition, retention and development marketing programs to support the client's strategic objectives; establishing marketing program ROI measurements.

Delivering Quality at Cyberspeed

What's more, Hoffa adds, Wheelhouse is delivering quality at near cyberspeed.

"We have extremely tight deliverables," she declares. "I have to deliver something on a biweekly basis—we had to have the first deliverable within three weeks of our start date. I'm in a marketing department, not an IT group. I need to show results or the project is not going to happen, and my results have to be tangible. Wheelhouse has made some very quick turnarounds. And I'm not talking about some generic listing of what a campaign management system does or how we would set up a reporting system. Wheelhouse delivered materials—and action items—unique to VoiceStream."

The first phase is due to be completed mid-January, 2001. By then, Hoffa will have a totally redesigned e-architecture for VoiceStream's CRM projects and the functional requirements for an RFP for a new campaign-management system. Moreover, thanks to Wheelhouse's support, VoiceStream will have the last phase

of its marketing data mart, with full reporting capability and campaign sourcing. The final item will be the actual selection and implementation of the new campaign-management system, which Wheelhouse will assist VoiceStream in completing.

Asking Questions First

"We looked at other companies, but Wheelhouse is one of the very few that get it; they understand from a strategic vantage point what it will take for VoiceStream to achieve its goals," says Hoffa. "The Wheelhouse staff has an impressive set of technical skills, yes, but so do other consultants. What makes Wheelhouse stand out is the type of people. We have not been forced to train our consultant's consultants."

Wheelhouse's people have experience, and, most important, they ask questions first and then help you move toward your solution. They don't come in with prepackaged solutions. After 20 years of working with many, many vendors in this industry, I consider asking questions to be a sign of competence." ■

E.piphany, MicroStrategy and Vignette, including performance and quality testing, as well as knowledge transfer about the system to clients.

- Fast-track industry installs: providing for rapid implementations of marketing systems with pre-built data schemas, measures, reports and webpages designed for specific industries such as financial services and retail.
- Component additions: enhancing the value of existing marketing applications through the addition of new components and modules; integrating marketing applications with broader CRM systems.
- Marketing application upgrades: performing upgrades to the latest version of leading marketing applications to enhance performance and functionality, without risk to live systems.
- Marketing application pilots: implementing a marketing application, then executing and measuring marketing programs at the AMC; providing ROI analysis on program results.
- Database development and integration: integrating multiple data sources to support multichannel marketing; adding new data sources as needed.

- Technology architecture: designing the data and applications architecture required to support marketing activities.
- Marketing tool recommendations: selecting the right mix of marketing, analytic and CRM tools to enable and maximize the effectiveness of marketing activities.

Technology and Data Implementation Services

Wheelhouse implements the technologies its clients need to plan, execute and measure their marketing activities—for today and as they grow. Their consultants are trained and experienced in the implementation of leading marketing applications, such as E.piphany, MarketSoft, MicroStrategy and Vignette. Wheelhouse will also help integrate the right data to create a unified customer view across all marketing related channels. Their database-integration consultants are experienced with a wide variety of database tools such as ERStudio, ERwin, Informatica, Microsoft SQL Server, Oracle8i, SAS, Syncsort and Trillium.

- Marketing application implementations: implementing and deploying marketing applications such as

- System staging (optional): staging any implementation at the Wheelhouse AMC to accelerate deployment and avoid risk to live systems.

Applications and Customer-Interaction Management Services

Through its Applications Management Center, Wheelhouse helps its clients manage and optimize its marketing systems and customer-interaction programs. These retainer-based remote management services enable Wheelhouse's clients to realize true return on investment as they attract, retain and develop their customers. These services include:

- Marketing programs optimization and management: planning, executing and measuring advanced marketing programs, including ROI analysis.
- Analytic services: providing in-depth reporting and analysis, including customer profiling, segmentation, data mining and decision-tree modeling.
- System optimization: improving back-end utilization and performance of marketing applications includ-

ing Extract, Transform and Load (ETL) and database tuning.

- 24/7 applications management: remotely managing marketing system performance and stability, including preventive monitoring to ensure systems are running as expected and supporting planned marketing activities.

Industry Experience and Focus

Wheelhouse applies specialized industry expertise and best practices to meet its clients' needs more effectively. Wheelhouse consultants bring decades of marketing and technology experience in several key verticals:

- Financial services
- Media
- High-tech
- Retail
- Telecom

Wheelhouse's Applications Management Center

Wheelhouse's AMC is a fiber-linked marketing technology development, staging and management center designed to accelerate marketing innovation. It incorporates:

- A state-of-the-art data center
- A sophisticated network operations center (NOC)
- Unix and NT staging development servers
- High-speed networks
- Highly secure environments
- Marketing and technology experts
- Proven processes and techniques

In partnership with facilities-based hosting companies like UUNET and Exodus, Wheelhouse's AMC helps organizations in need of marketing innovation develop, test, deploy and manage marketing technologies and applications, ensuring that they're ready for production before transitioning them to their own site or chosen hosting facility. Once staging is complete, Wheelhouse can then remotely manage and monitor client marketing systems and programs on a 24/7 basis.

Wheelhouse AMC-Enabled System Staging

Wheelhouse's AMC eliminates development constraints—such as buying hardware, negotiating software licenses and database integration—by providing a platform to begin building a solution. This enables concurrent development without affecting an organi-

zation's existing business-critical systems.

Further, by removing the constraints imposed by internal resources, both human and technological, Wheelhouse can significantly speed time-to-deployment of vital mar-

keting applications without tying up its clients' expensive and scarce IT resources. Capabilities include:

- Creation of hardware and software staging platform
- Staging of customer and content databases using a combination of databases and database tools
- Performance testing using industry standard performance tools
- Deployment of client systems to the client's hosting facility

24/7 Applications Management

Through its AMC, Wheelhouse can provide organizations with the infrastructure, security, people and processes to guarantee availability of mission-critical marketing technologies and

applications. Wheelhouse reaches beyond just the base infrastructure and focuses on the actual purpose of the infrastructure—marketing applications.

Wheelhouse's 24/7 AMC staff constantly monitors and manages the client's live marketing systems, no matter where they're located. Wheelhouse can also provide the resources and experience to enhance and extend the client's utilization of marketing systems to capitalize on their full capabilities via management and monitoring of:

- System and network operation and performance
- Marketing applications
- Customer and content databases
- Customer-interaction policies
- Enhancement and extension of e-marketing application utilization

Business today runs on Internet time. Marketing opportunities appear and disappear at Internet speed. For many organizations, the time it takes to plan and implement the technology infrastructure needed to support the pursuit of those marketing opportunities is simply too long, and those opportunities are lost forever.

The alternative is to employ the expertise of an established, proven marketing infrastructure professional services company that understands the technical demands of marketing in Internet time, at Internet speed. ■

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- Barclays Global Investors
- CMP's Business Technology Group
- First Call
- J.P. Morgan Chase & Co.
- Natural MicroSystems
- RSN Media Network
- Technology Review Magazine (MIT)
- Textron Financial Corp.
- UPromise
- VoiceStream Wireless
- Webvan
- Wells Fargo

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HOT Seat

personal growth and feedback from stakeholders such as family and the community. Total leaders not only achieve better business results but also live richer lives in the process, says Stewart Friedman, who directs the LDC program while on sabbatical from the University of Pennsylvania's Wharton School of Business, where he is a professor of management and director of the Wharton Leadership Program.

This effort to create a corps of entrepreneurial leaders throughout a company that is the definition of a corporate behemoth is the brainchild of Ford CEO Jacques Nasser, who has said Ford needs "nimble leaders at all levels" to keep pace in the new economy.

"Without question that's the right goal for a big company in the Internet age," says Harvard Business School professor Rosabeth Moss Kanter, who most recently authored *Evolve!: Succeeding in the Digital Culture of Tomorrow* (Harvard Business School Press, 2001). "Fundamental leadership skills haven't changed with the advent of e-business, but more people at more levels need to use them." She points out that "corporate giants have been saying they need to think like small, entrepreneurial companies ever since the dawn of the information age—when they were first confronted with global competition, dissatisfied consumers and the obsolescence of some of their business assumptions." But it's one thing for these companies to say it, another to do it, she says.

Especially in the auto industry, big companies have been

Internet laggards and latecomers to the idea of cultivating an entrepreneurial and improvisational spirit internally, Kanter says. That—and a hypercompetitive global sales market for cars and trucks—may explain the urgency behind the Leadership Development Program.

Testing Total Leadership

The LDC runs four training programs, corresponding to various management levels: New Business Leader, Leadership for the New Economy (LNE), Experienced Leader Challenge and Capstone. Ginny Preuss recently took part in the LNE program for midlevel managers. Based at the company's headquarters in Dearborn, Mich., Preuss has worked her way through the IT ranks at Ford and is now a special assistant supporting the company's new CIO and vice president, Marv Adams. During Phase 1 of LNE, Preuss spent a month in online discussions with program leaders and participants, generating a list of potential projects that could add more flexibility to Ford's IT environment. At first, she found it difficult to define her undertaking in the parameters of total leadership. "This was totally different from previous management programs at Ford because we were focused not just on improving the way we do business but transforming it," she says.

In Phase 2 of LNE, Preuss joined 44 other participants for a one-week intensive residency in Dearborn, finally meeting those she'd been working with virtually for weeks—her peers from across the company and

AT A GLANCE

Inside Ford

The Company: Ford Motor Co. (www.ford.com)—365,000 employees in 1,135 sites around the world.

The Challenge: To increase the company's nimbleness in the new economy, Ford needs entrepreneurial leaders to develop at all levels within the company.

The Solution: Ford launched its Leadership Development Center in early 1999 to train people from four different levels of management in the tools, tenets and mind-set of leadership. Nearly 3,900 managers have been through the program or are now enrolled.

around the world. In workshops led by academics from outside of Ford, participants tested their ideas for change. They were prodded—sometimes by a team of improvisational actors—to imagine new ways of working. Preuss says that interacting with managers at her level from disparate departments and organizations in Ford gave her a better picture of how IT fits into the carmaker's overall strategy. Using their feedback and that of her coaches, she picked a project that would match with her organization's already established resources and priorities, giving her innovations a better chance of success. Her plan: dive into Ford's 1-year-old Six Sigma quality-control program, measuring IT's performance against customer needs.

Back at work, Preuss formed a team of Six Sigma black belts

(those charged with training others in quality control), drawing one member from each of Ford's major IT organizations. The group developed and conducted open-ended interviews throughout the company on what IT customers want—not just from inside Ford but also outside contractors. The team learned about differences in what various customers value. For example, manufacturing is much more concerned with project costs than is marketing. The survey will now be repeated twice a year and will help guide internal IT improvement projects, says Preuss.

So far, so good—for Ford, that is. But what about the total leadership rubric that integrates the four domains of work, personal goals, family and community? "My first goal was to create an environment where we can truly support flexibility,"



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HOT Seat

says Preuss. "So when I formed this team, we started practicing concepts of total leadership while exploring ways of incorporating those concepts into the system as a whole." For example, that may involve adjusting work schedules to accommodate family events, using tools such as teleconferencing to reduce business travel or arranging interruption-free time in which managers inundated with phone calls and e-mail can catch up on necessary reading. In such a system, actual effectiveness—rather than face

to different people. LNE program participant Paul Landray, Essex, U.K.-based manager of Ford's European Solutions Centers, which handles IT applications, development and maintenance, points out that while many employees want to free up time during the workweek, others don't. "Expectations among some European employees are very different than those of their American counterparts," he says. "For example, some say, 'I don't want the flexibility you want for me. When I'm at

how accomplishments are recognized and whether a high-quality personal life is possible. "Salaries are usually down on the list of questions," he says. "It's critical that we have that in the forefront of our minds and not pay just token attention to it."

Landray says his LNE residency also gave him a better appreciation of how the priorities of his 700 employees might differ from his own. "My makeup is very task-driven, very delivery-focused and perhaps somewhat insensi-

pants] to become ambassadors for new tools and new thinking."

Phase 1 of LNE—the online portion prior to the residency—requires use of Microsoft Outlook and eRoom for scheduling, discussion groups and asynchronous work on documents. Hampton is quick to point out that this work is not merely preparation for residency but training in how to use e-tools effectively.

During the residency itself, participants use wireless LAN setups for collaborative work in small groups. By the time they return to their posts, they have formed a Web-based network of potential leaders who can reach across sectors of the corporation—sharing ideas, encouraging and teaching one another, and gaining a companywide, systemic view of their work. Landray now uses eRoom to control e-mail. "E-mail can get stressful," he says, "especially when you get all these attachments. With a little discipline, you cut down on that considerably by using eRoom."

One goal of the program is to help leaders learn which tools to use—and when, says David Soubly, an IT systems planning specialist who works in the Leadership Development Center. "These tools reduce the need for constant face-to-face interaction, but they don't eliminate it. It requires discipline and discretion to know when to use them." Not to mention constant training and effort. After all, new DNA doesn't evolve overnight.

David T. Gordon is a freelance writer based in Cambridge, Mass. He can be reached at dgordon@massmed.org.

"Some people say, 'I don't want the flexibility you want for me. When I'm at work, I'm at work, and when I leave the office, I want to leave the office. I don't want to do e-mail at home.'"

—PAUL LANDRAY, MANAGER OF FORD'S EUROPEAN SOLUTIONS CENTERS

time at the office—has to become the standard for recognition and promotions, she says.

Part of leadership is modeling good methods. "You really need to practice what you preach," says Preuss. "You can't give lip service to [total leadership] and then work until 10 every night or just promote the people you see sitting next to you." For her, that realization meant learning to "get up from a meeting at 3 p.m. and say, 'I'm leaving. I've got a Brownie meeting.' Of course, I have to deliver, but I can go to Brownies and still achieve my objectives and goals." Her 6-year-old daughter heartily agrees.

Leading Across Cultures

Flexibility means different things

work, I'm at work, and when I leave the office, I want to leave the office. I don't want to do e-mail at home.' They'll stay at the office late when they need to, but they don't want the line between work and home blurred. So when you're dealing with people, there isn't a prescription for everyone. That's probably the most powerful lesson I've learned."

That's also a lesson that Landray believes leaders must learn if they hope to attract and retain good talent. Although just 32 years old himself, Landray sees a big difference in expectations in the younger generation than among people his age. In interviews, recent college graduates express more interest in where the company is going,

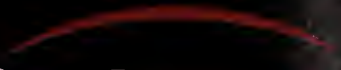
tive to the human aspects of leadership. For instance, I don't have children, but many of my peers do, and our discussions about that changed my perspective. I began to see the needs of my team through a different lens."

Leading with IT Tools

IT does more than enhance the bottom line, Friedman believes; it also promotes total leadership. Indeed, IT sits at the hub of all of Ford's processes: product development, manufacturing, purchasing, marketing and sales, and human resources. So it's crucial that Ford's leadership programs serve as a testing ground for new uses of IT, says LNE Program Director Nerissa Morris Hampton. "We expect [partici-

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HINDSIGHT | RICHARD SCHWARTZ

The Media Medium

HARPERCOLLINS PUBLISHERS

CIO Richard Schwartz is an IT intermediary for media, having worked in three communications and entertainment industries. In October, he joined the world's third largest English language book publisher, New York City-based HarperCollins, stepping into a CIO position that had been vacant for 18 months. He brings with him 20 years of IT experience, including tenures as CIO at advertising giant Young

& Rubicam and, for eight years before that, at Sony Music.

CIO: What technical issues do you face moving into book publishing?

Schwartz: The most difficult challenge is making sure we have all the skill sets and resources in place to deal with the legacy systems, which are a challenge in any industry. Traditional businesses have benefited from IT-based

improvements in warehousing, distribution, internal financial systems. But in the book industry, as in advertising, there's a lack of specialized IT systems or software—generic, packaged solutions—that readily fit. There's a lot of build-it-yourself.

How do the changes in the way books are produced affect you?

The pace of new e-initiatives has been accelerating. Because of that, there's not a lot of appetite in the business community for huge projects. There are many competing formats out there for e-book and e-book-reading apparatus, but

none has taken off at anywhere near the clip that was expected. So that creates challenges for our organization in terms of investment. You don't want to be too far ahead of the curve in case you end up in a Beta/VHS situation and back the wrong horse. On the other hand, you shouldn't be too cautious.

From the IT standpoint, how does book publishing compare with the music industry?

Book publishing is about two to three years behind the music industry in feeling the impact of IT. Fortunately, we haven't had challenges like Napster that have presented huge problems for the music industry. Our materials aren't as easily copied or transformed into things that can be shared in a peer-to-peer relationship. However, we're just now beginning to get into competing formats, so some of that experience at Sony—with digital management, digital archiving, digital rights management—is translating quite well.

What have you learned about attracting and keeping talent?
No CIO can have all the technology capability that's required today. So it's vital to identify and mentor those who can move up in the organization and let them know how important they are. When you try to make a cultural shift, you're dealing with emotions, people's careers and lives. So first of all, giving direction to the overall group is important. However, that can't replace one-on-one meetings with individuals.

—David T. Gordon



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HOT Seat

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—Erik Sherman



Funda-Mental Health

PART OF THE PREMISE behind the founding of PlumRiver Technology, a 1-year-old B2B software and services provider offering an online channel performance management system, was that an office environment should be fun. To this end, the Salisbury, Mass., company gives its 23 employees free access to a nearby miniature golf course and driving range.

But for those days when work isn't fun and a lunchtime round of putt-putt won't suffice, PlumRiver gives each employee six mental-health days off each year, on top of the standard complement of holidays and vacation time. "There are days when people need to not be here, and therefore the company needs them to not be here," says Jeff Carlson, director of training and recruitment. In fact, the company urges its workers to go away; managers prod employees to take time off if they're reluctant to do so. One mental health day is given as a floater each quarter, while two are floaters throughout the year.

So far, employees have been thrilled with the extra days off, Carlson says. "Our productivity has absolutely increased. People come back visibly refreshed." The mental-health days are part of a corporate culture at PlumRiver that emphasizes a healthy balance between work and play, office and home. The company's philosophy is "quite simply that we want people to enjoy coming to work every day," Carlson says. Although the company is too new to have compiled valid turnover statistics, initial signs are promising: Finding qualified IT professionals has not been a problem, and only one person has left in the first year, he says.

Before Carlson administered company mental-health days, he worked in mental health, as a therapist at a Dover, N.H., psychotherapy practice. "It actually was a pretty smooth transition" from psychotherapy to the corporate world, he says. "Fundamentally I'm addressing a lot of the same things, like leadership training and how to have a difficult conversation in a way that will be most successful."

—Edward Prewitt

Reading Room

EPIX MEDICAL, a biotech company in Cambridge, Mass., has long had a host of family-friendly measures in place for its 80 employees, such as flexibility in work hours, child care and family information on the company intranet, and Starbucks' coffee in the office. But a recent baby boom among employees, who tend to be under 40 with kids, prompted the company to survey the staff for new family-friendly initiatives.

The top vote-getter? A company book club, which came as a surprise to CEO Michael D. Webb. "Nobody would have ever brainstormed this in management," he says. Webb approved the suggestion instantly because a book club is easy to implement, fun and inexpensive. Participants choose a book, Epix purchases copies for everyone from Amazon.com (past invoice: \$240) and the group gathers once a month in the company break room at lunchtime. The first three books discussed were *Corelli's Mandolin* by Louis De Bernieres (Pantheon, 1994), *Shopgirl* by Steve Martin (Hyperion, 2000) and *Alias Grace* by Margaret Atwood (Doubleday, 1996), demonstrating a breadth of literary tastes.

But does a book club really qualify as a family-friendly measure? It does at Epix, because it allows employees to participate in leisure activities even though they lack leisure time. The intense pace of biotech work combines with the exigencies of parenthood to leave many in the company stretched and searching for ways to do it all. "It leads to this funny trend of work and home life blending together," Webb says. "People are interested in how they can accomplish more of their home chores at work" and vice versa. Far from discouraging that commingling, Epix goes out of its way to help. The company gives employees PCs to take home and pays the monthly ISP or cable subscription fees. Webb is also looking into other suggestions from the survey, including a concierge service and company-reserved slots in day care and summer camps.

The book club also serves to bring the company together, Webb says. With 15 participants, it's the largest employee group. "This gets everybody interacting in a totally different way," he says. Is it time to change the company name to Epics Medical?

—E. Prewitt

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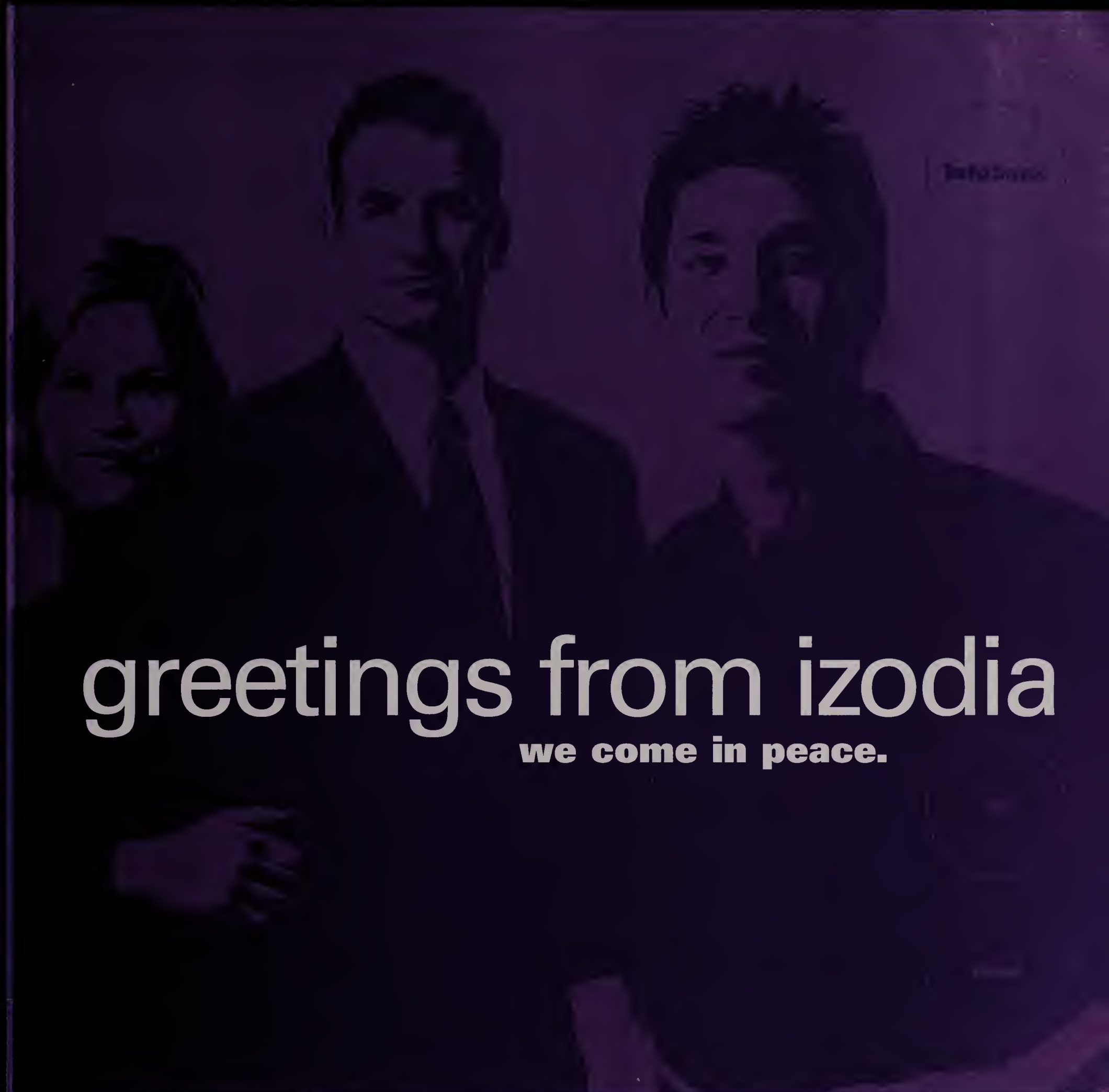
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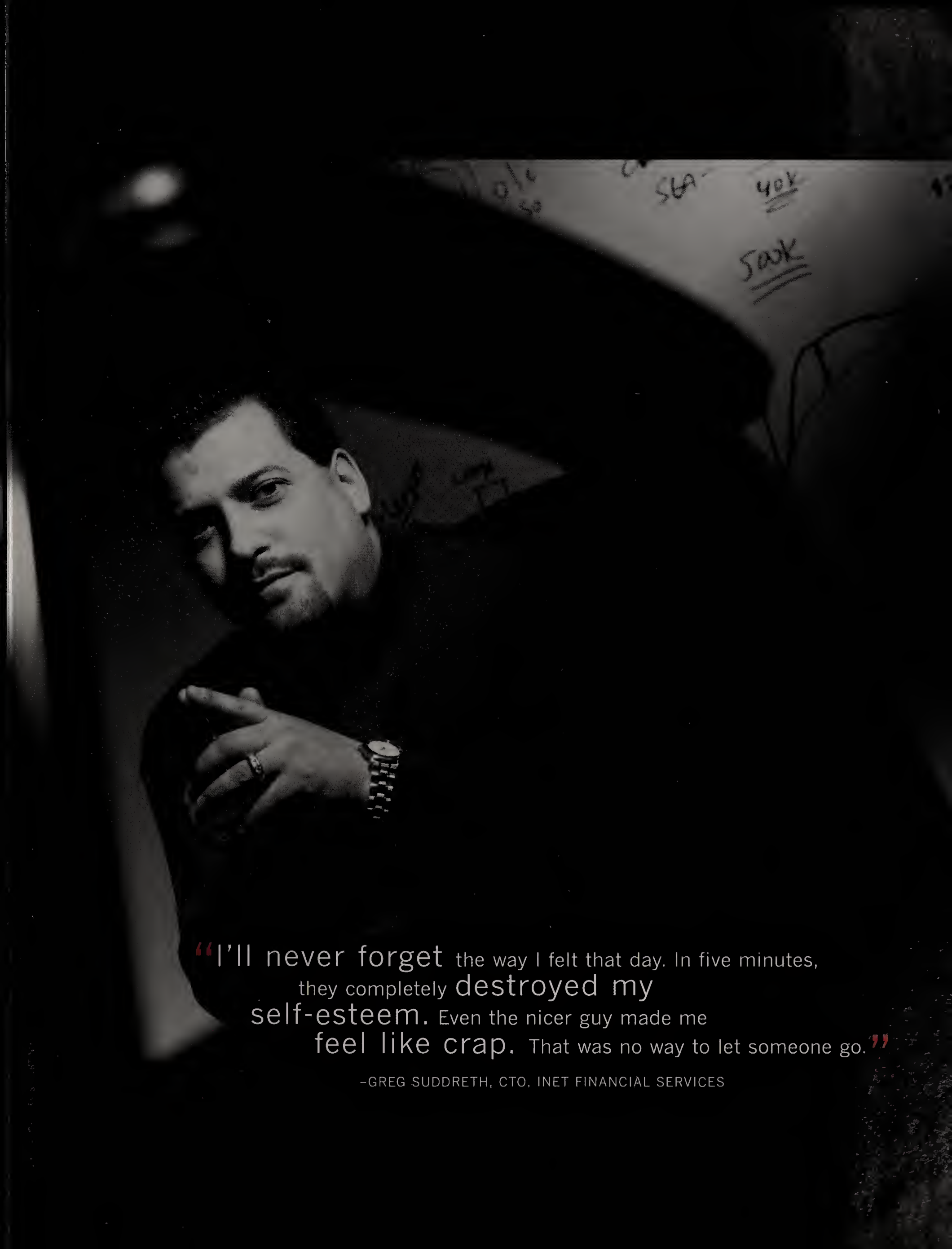
BY MATT VILLANO

JOHN SUDDRETH was 22 years old when he got sacked. Fresh out of college, he was working as a sales associate for a wine distributor just outside Chicago. For roughly \$40,000 a year, Suddreth drove up and down Interstate 74 in his 1991 Hyundai Sonata, selling cases of wine to liquor stores 35 hours a week. But no matter how hard he tried, he could never meet his quota. Finally, on a bitterly cold January evening, the bosses called him into a back office. Before Suddreth could even sit down, one boss started yelling, blaming him for sabotaging profits. He questioned Suddreth's work ethic. He wondered aloud how the youngster thought he would ever be able to hold down a "real job" in sales. Then he said, "You're fired."

The other supervisor remained silent throughout, and when his colleague was finished, he patted Suddreth on the back, offered a few words

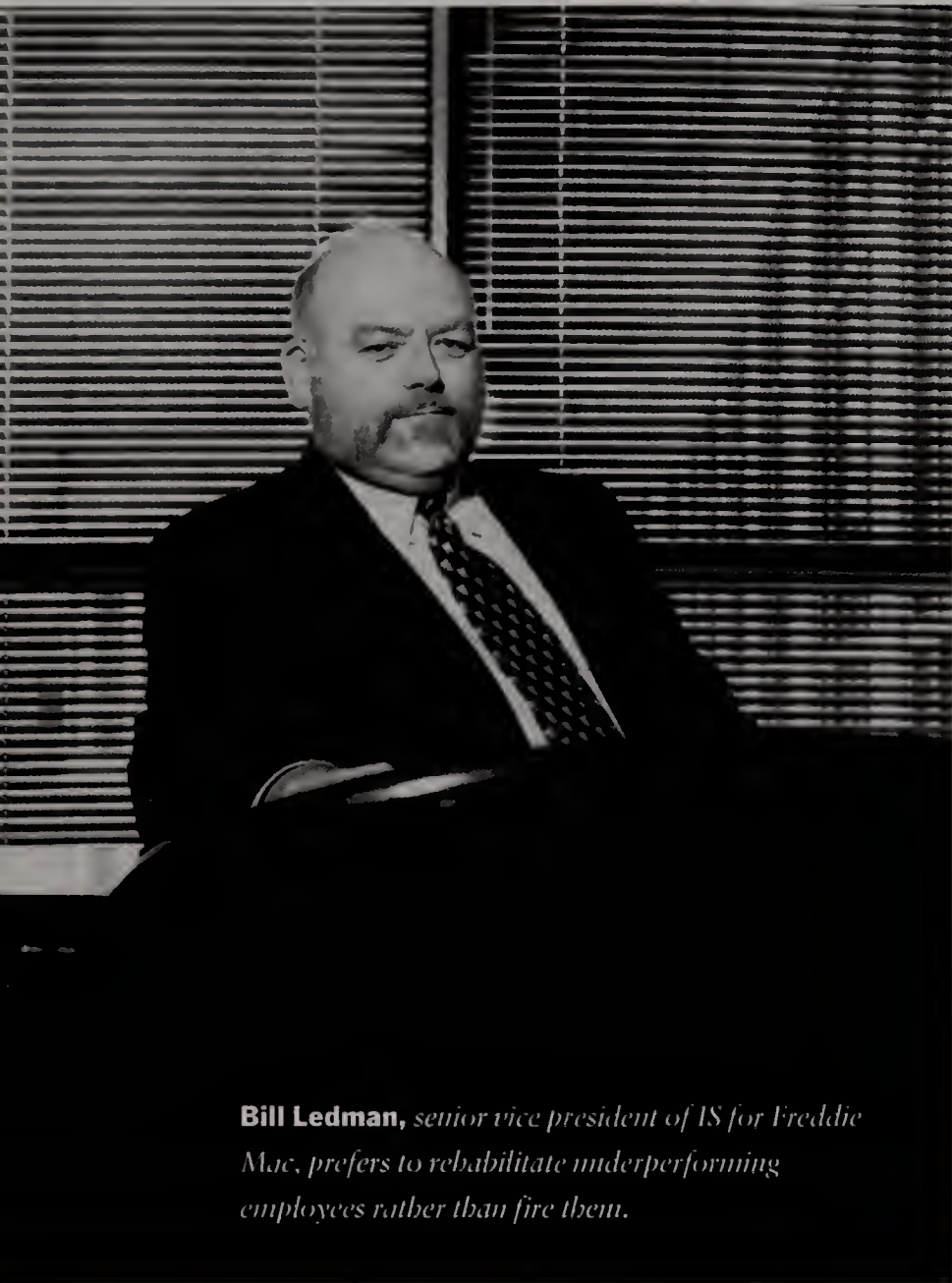
Reader ROI

- ▶ Understand why firing correctly is important
- ▶ Identify what it takes to fire with dignity
- ▶ Learn how to cope with the personal stress of letting people go



“I’ll never forget the way I felt that day. In five minutes,
they completely destroyed my
self-esteem. Even the nicer guy made me
feel like crap. That was no way to let someone go.”

-GREG SUDDRETH, CTO, INET FINANCIAL SERVICES



Bill Ledman, senior vice president of IS for Freddie Mac, prefers to rehabilitate underperforming employees rather than fire them.

of encouragement and showed him the door. There was no severance or exit interview.

"I'll never forget the way I felt that day," Suddreth, now 33, says. "In five minutes, they completely destroyed my self-esteem. Even the nicer guy made me feel like crap. That was no way to let someone go."

The bitter memory of that January day has inspired Suddreth to approach firing his own people with compassion, honesty and dignity, he says. In 1997, as IT manager for Alsip, Ill.-based International Gateway

Communications, he had to fire a technician for performance issues. Along with the ax, he also offered the man outplacement counseling, a hefty severance package and references for future employment. Last year, as director of IT for HotSamba.com in Schaumburg, Ill., Suddreth spent a week finding new jobs for three people he was forced to lay off. Today, as CTO of Inet Financial Services in Northbrook, Ill., Suddreth hasn't had to fire anyone, but he understands the inevitable, and he vows that he's ready for the task.

This might be more than most CIOs can say. In the tight job market of the past several years, knowing how to fire correctly is a skill few IT leaders have displayed or bothered to cultivate. Yet it's important—to those who stay as well as those who go. And with the economy

tanking, more will be going every day. Fire the right way and people leave your organization sad but not enraged. Screw it up and you run the risks of burning bridges, alienating those who stay and hampering your ability to make future hires.

The common perception seems to be that firing indicates organizational and managerial failure and is therefore too sensitive to discuss. But as Diane Tunick Morello, a vice president of IT business management for Gartner, explains, termination is as much

a part of management as recruiting, hiring and retention, and executives need to learn the dos and don'ts.

"Just because this is a sensitive issue doesn't mean it's something IT leaders should ignore," she says from her office in Stamford, Conn. "Firing someone with dignity takes thoughtfulness, sacrifice and skill. It's never, ever easy, but it can be done well."

LETTING GO

There's no shortage of expert opinions on firing strategies. For the people doing the firing, however, discussing termination is a lot like talking about hemorrhoids—too personal, too sensitive and too close to home. More than a dozen CIO-level executives declined to participate in this article, explaining that they didn't feel comfortable discussing such a controversial topic.

But the handful of IT managers who agreed to volunteer their time and opinions on termination all described similar attributes of a framework that is both fair and firm. The methods that these executives have found to work (sometimes by trial and error) dovetail with a body of research on the best ways to show employees the door.

The first step in this framework is to identify problem employees and notify them of their failure to perform. Do this yourself in a one-on-one meeting with the worker—don't leave it to the human resources office. CIOs who subscribe to this approach say they give struggling employees anywhere between 60 and 120 days to turn performance around. Many companies have instituted special programs designed to drive home the significance of the make-or-break period. Puneet Bhasin, until recently CIO of

Knowing how to fire correctly is a skill few IT leaders possess.
Do it right and people leave sad but not enraged.
Screw it up and you might burn bridges, alienate those who stay
and hamper your ability to make future hires.



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Livermore, Calif.-based Greenlight.com, ran what he calls the Performance Improvement Program to bring fringe employees back from the brink. At Freddie Mac, the government-chartered housing assistance company based in McLean, Va., Senior Vice President of IS Bill Ledman employs a "gap recovery program" that serves a similar purpose.

Programs like these are generally termed progressive or corrective discipline. Central to them are probationary periods for underperforming employees during which all work activity is documented. This record-keeping puts pressure on workers in a humane way; by giving them unambiguous goals to shoot for, progressive discipline demonstrates that the company isn't out to nail them to the wall. At Freddie Mac, Ledman works with employees on probation to map out goals and objectives, meeting with them weekly to chart progress overall. At Greenlight.com, employees had to obtain signatures from their supervisors and HR representatives before they could take on a new task.

Bhasin says that while this requirement was a bit bureaucratic, it helped him keep better tabs on specific employees. In turn, these workers could see a well-delineated road to return to good standing. If they failed to pick up performance by the dead-



Puneet Bhasin, former CIO at Greenlight.com and Ryder TRS, prepares carefully for the termination conversation.

line, however, the documentation built a case for firing. "Once you've gone through the process of documenting the issues, everything becomes very straightforward," he says. "If a person still isn't working out, the

facts you've compiled make a termination conversation easier."

Still, CIOs agree that when an employee has failed to respond to progressive discipline, the termination conversation is by far

The Conversation

What one CIO says to employees he's letting go

EVERY TIME he has had to fire one of his IT staffers, Puneet Bhasin, former CIO at Greenlight.com and Ryder TRS, has spent a few hours preparing for the talk. (Bhasin resigned in February when Culver City, Calif.-based CarsDirect.com acquired Greenlight.com.) He jots down thoughts about the employee's particular circumstances and tries to personalize his comments accordingly. But by and large, when he's canning someone for poor performance, Bhasin usually ends up using the same script. What does he say?

"Thanks for coming, please sit down. A few months ago, we defined an objective for you to improve your performance. We've been keeping close tabs on it, and I've given you lots of direction

in terms of how you can be a better employee. After all of that effort, it's clear this isn't going to work out. It seems to me that your heart isn't in the game and that you're not suited for this job. In spite of all the time we've spent with you, I don't believe there's much more I can do to make you succeed in this company. I think it's best for you and best for the company if you resign.

"I've prepared your termination letter for you here, and in that envelope you'll also find the details of the severance package we've constructed for you. If you have any questions about this, I encourage you to direct them to the human resources department. We've enjoyed having you work here, and it's unfortunate that this didn't work out. Thanks for your time."

—M. Villano

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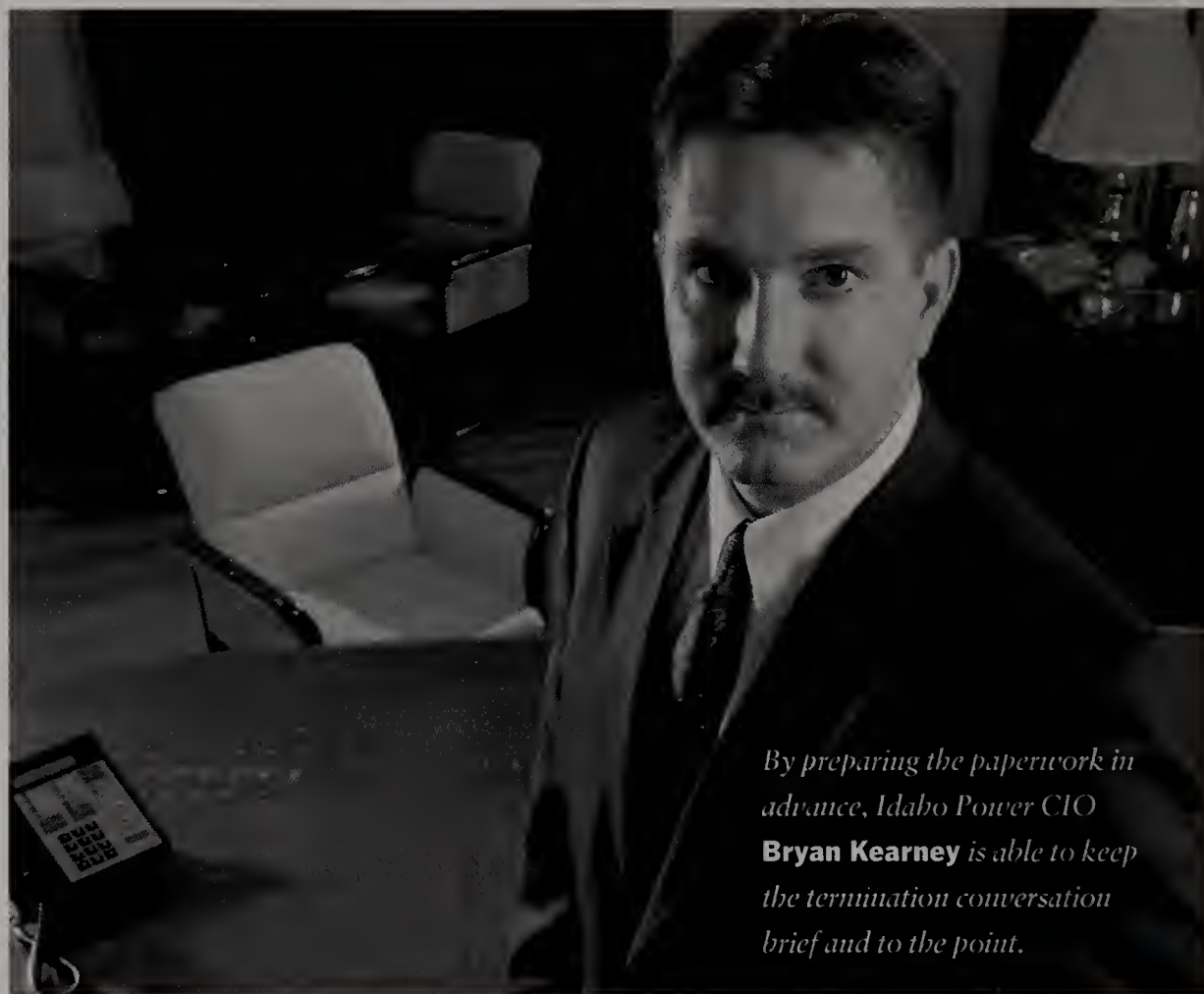
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the most difficult aspect of letting someone go. Bryan Kearney, CIO and vice president of Idaho Power in Boise, Idaho, advises managers to arrange the final meeting carefully. Although Kearney hasn't had to fire anyone at Idaho Power, at previous jobs he scheduled termination meetings at the start of the day to get it off his plate early, held the meetings in his office rather than the employee's, had representatives from HR sit in to make sure he covered all the legal bases and prepared the necessary paperwork (termination letter, severance package and so on) beforehand.

Experts say Kearney does it right; with all the nitty-gritty details out of the way, managers can focus on the conversation itself. Here, says John Challenger, CEO of the Chicago-based outplacement agency Challenger, Gray & Christmas, the rule is similar to one everyone learned in kindergarten: Treat employees as you would like them to treat you. During the meeting, the manager should go out of her way to maintain a calm and supportive tone, he says, stating facts simply and plainly and making sure the employee has been terminated in no more than 15 minutes. A meeting that takes longer is a sign that the manager is getting bogged down in a negotiation rather than making a declaration. While the manager should cite the documents that track poor performance, she should not dwell too long or too heavily on such negatives. She should focus instead on the employee's next step.

"You want to be firm, but you don't want to belabor the point," he notes. "Be kind, but not too kind. Remember that your job is to do what's right for the business." Challenger recommends that managers write down their comments before the meeting and rehearse them so that they're able



By preparing the paperwork in advance, Idaho Power CIO Bryan Kearney is able to keep the termination conversation brief and to the point.

to keep the conversation on track (see "What Do You Mean I'm Fired?" Page 68). Gartner's Morello recommends that managers not waste time during the termination meeting outlining the components of a severance package but instead instruct the employee to direct all questions to HR.

HOLD YOUR FIRE

Not every relationship has to end this way. Some IT managers have developed their own techniques for firing. At CareGroup Healthcare System in Boston, CIO John Halamka combines progressive discipline with an approach he calls "ask-tell-ask." The interactive strategy is designed to make employees more comfortable with their fate. Getting fired is never easy, but Halamka has

found that this method protects employees' dignity. In mirroring the way physicians are taught to behave in emergency medicine, the ask-tell-ask approach is predicated on the notion that it's easier to tell someone bad news when they're already expecting to hear it. For Halamka, an emergency physician who also serves as associate dean of educational technology at Harvard Medical School, the strategy is second nature.

A typical termination at CareGroup begins with a question: "How do you feel about your performance since we put you on probation?" Halamka says that most of the time, a worker will know if he has continued to underachieve and will respond with the understanding that a firing is imminent. At this point, Halamka confirms the suspicion—"Yes, you're right, you are going to lose your job." He immediately follows this statement with another question: "How do you feel about this?"

Then, he says, employees generally express sorrow and sadness but not

"You want to be firm, but you don't want to belabor the point. Be kind, but not too kind. Remember that your job is to do what's right for the business."

—JOHN CHALLENGER, CEO, CHALLENGER, GRAY & CHRISTMAS



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anger; once they have voiced their fears of termination, they are more willing to accept the inevitable. "When prompted appropriately, most folks have the realization that something dire is going to happen," Halamka says. "For some reason, admitting that realization eliminates a good bit of the initial sting."

While Halamka's method is intended to usher people out the door gently, Challenger assails it as a cop-out. The ask-tell-ask approach improperly shifts responsibility from managers to employees, Challenger says, by leaving it to the latter to declare their own poor performance. SEI Information Technology, a high-tech consultancy in Chicago, takes another tack while still seeking to soften the psychological blow of termination. SEI executives try to talk poor performers into resigning before they are fired. Director of Human Resources Rod Boswell says this approach enables employees to leave with their dignity intact since they are the ones deciding their fates. This technique, which Boswell characterizes as Psych 101,

gains the desired outcome without the pain. Last year, for example, when a young programmer repeatedly refused to conform to a company dress code, Boswell told the youngster he'd be fired unless he resigned first. The result? The kid jumped ship that day.

Some companies bend over backward to avoid firing people. Conoco CIO Thomas Nicewarner has worked with representatives from the Houston-based energy company's HR department to develop a retraining and reassignment program that keeps even tightrope-walking workers in the fold. Dubbed HireConoco, the program was launched in the early 1990s as a company-wide effort to move employees in danger of termination (whether because of poor performance or layoffs) into new positions elsewhere in the corporation.

Over the years, Conoco has reassigned hundreds of employees. Nicewarner estimates at least 100 of them have come from the IT department. Once an employee is enrolled in HireConoco, he receives sponsorship from a manager familiar with his

skills. With the sponsor's help, the employee works with in-house educators and psychologists to determine a new line of work and a plan of action. This hand-holding is time-consuming but important, says HR Director Linda Miller; by committing to keep someone around, Conoco managers are redoubling their investment in that employee.

HireConoco reflects a corporate culture that places a premium on treating employees well, Miller says. "We take laying someone off very seriously, and we'll do anything we can to avoid it at all costs. Even in what some might call their darkest hours, we treat our people with honor and respect."

Although cynics might liken Conoco's approach to burying bad apples instead of throwing them out, Gartner's Morello says it's crucial to be gentle when firing. IT managers who appear heartless or happy when firing risk developing a bad reputation. IT people love to talk, and bad news travels fast. Kearney, the CIO at Idaho Power, notes that he's worked with the same people at dif-

"What Do You Mean I'm Fired?"

Few employees are willing to accept termination quietly. Here's how to prepare.

OUTPLACEMENT EXPERTS say people typically display one of five reactions to termination: anticipation, disbelief, escape, euphoria or depression. To help prepare for any one of these responses—and to reduce the likelihood of workplace violence—Anita Web Weaver, a regional vice president for operations at Boston-based outplacement company Drake Beam Morin, says it's important to have answers to the questions you may be asked during the termination conversation. Weaver and her colleagues put together a list of these questions and asked staff psychologists to formulate good and appropriate answers. With Drake Beam Morin's permission, they are reprinted here.

Why me? Who made the final decision?

This decision was based on a number of factors, including individual job skills, work experience, organizational needs, tenure and performance. These decisions are always difficult, but they were reviewed and approved by management.

What recourse do I have?

Employees are always free to talk with a higher level of management. However, because management has already carefully reviewed this decision, it is unlikely that the outcome will change.

Can I continue to work for a while?

No. We feel that it is in your best interest and the organization's best interest that you use your time exploring employment

opportunities elsewhere.

Can I be rehired?

You are eligible for rehire, but the probability of that is unlikely. This is why you should concentrate your efforts on finding employment outside the company.

Are you sure you've made the right decision? I plan to contact my supervisor.

Of course you are free to make an appointment to see my supervisor, but I must tell you that he is fully aware of this decision and supports it 100 percent.

How sure are you that this is a permanent decision?

This was a business decision. It was necessary for business reasons.

—M. Villano

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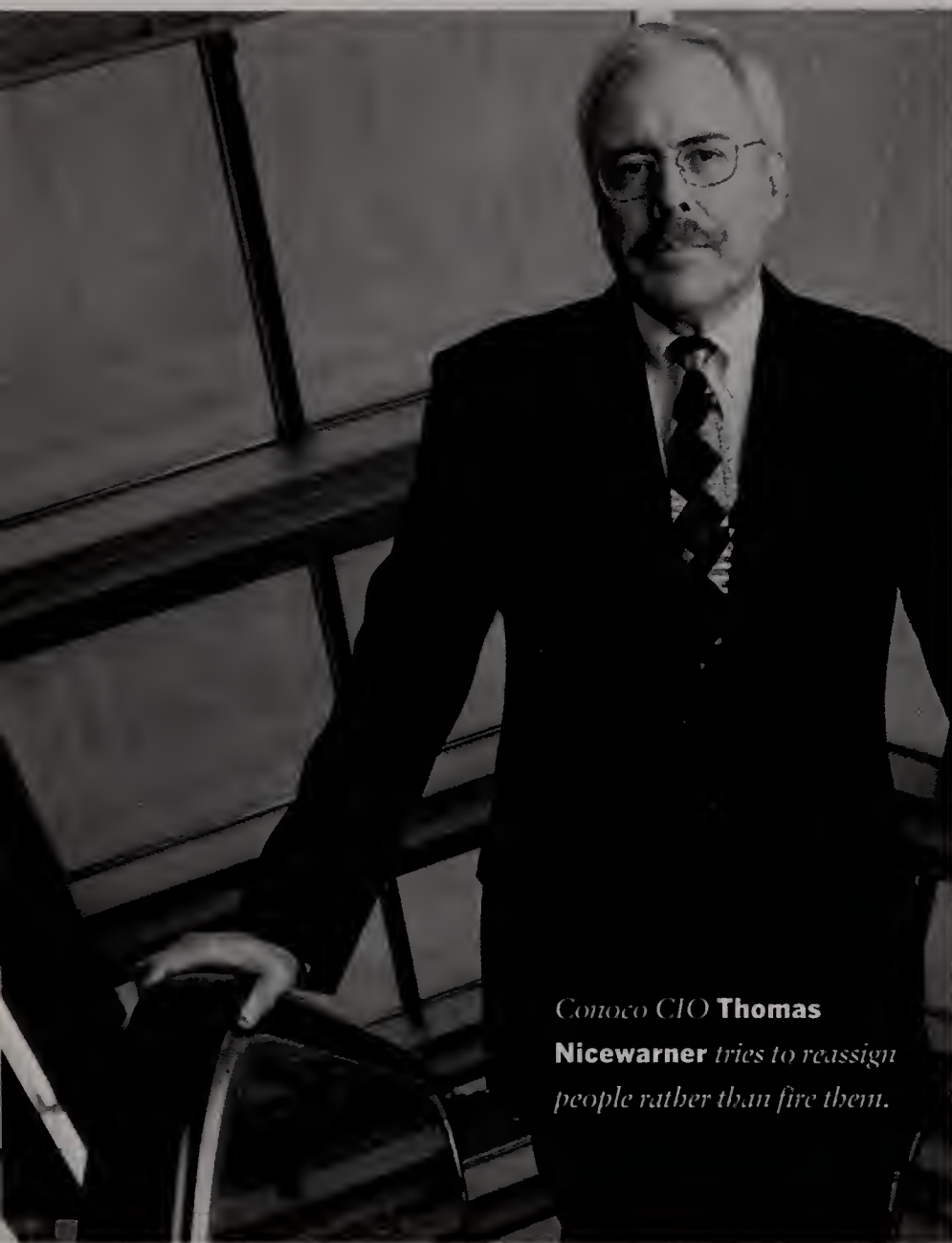
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Conoco CIO Thomas Nicewarner tries to reassign people rather than fire them.

ferent jobs. If he hadn't handled terminations with dignity, he says, any one of these employees could have gossiped about the past and undermined his current job.

Kearney points out that notoriety for firing not only alienates you from existing employees, it scares off prospective job candidates as well. The lesson is to do the right thing the first time around. "Everything I do is potentially my reputation, so this isn't really that tough of a concept to understand," says Kearney, who learned his leadership skills in the United States Marine Corps. "If you treat people well, if you treat them with dignity and compassion, you shouldn't have to worry about your reputation."

It's not only the manager's reputation that is at stake. Attorneys caution that executives also risk lawsuits

if they don't handle firing properly. Ken Kirschner, head of the employment law group at Kelley, Drye & Warren in New York City, says that although employers are not legally bound to provide a reason for termination in most states, employees who have been fired tend to press charges if they feel they were embarrassed, persecuted or otherwise treated unfairly during the termination process. Pamela Giannotto, a lawyer in Hackensack, N.J., concurs, saying that most of her clients who file suit alleging wrongful termination seek to "get even" or "to let off steam." Peter Panken, a partner in the employment and labor division at New York City-based Epstein, Becker & Green, notes that employers need to be particularly careful with the reasons they give for firing people,

especially when the employees fit into the protected classes of women, minorities, homosexuals and adults over 40.

"Chances are, a person's race or sexuality has nothing to do with why you're firing him or her, but these are sensitive issues, and if employees feel they haven't been given an appropriate reason, they will play that card," Panken says. "These questions will most likely be jury questions, and no matter what the facts may be, juries

tend to be sympathetic to employees."

THOSE WHO REMAIN

Termination doesn't end when the employee cleans out his desk. With all the attention good companies put to making dismissal more palatable for the employees on their way out, managers often overlook their own feelings and the feelings of the employees who are still around. Firings wreak emotional havoc on everyone in a work group. Statistics show that firing is particularly tough on the terminator—a famous 1998 study conducted at 45 hospitals across the United States indicated that managers double their risk of heart attacks during the week after they give someone the ax.

How can you fire someone with dignity and, at the same time, tend to your own health and the needs of remaining employees? Richard Bayer, chief operating officer of the Five O'Clock Club, a career counseling agency based in New York City, has a one-word answer: communication. Bayer estimates that he's discussed terminations with more than 500 IT leaders and has found that those who go out of their way to foster discussion and interaction among employees and other managers tend to cope better than those who don't.

"In light of the traumatic disruption a firing can cause, the people who remain simply need to know everything is going to be OK," he says. "This step is easy to overlook, yet neglecting it can really destroy the fabric of your organization."

For Bhasin, the aftermath of termination is the start of healing. Each time he has fired someone—both at Greenlight.com and

Employers need to be particularly careful with the reasons they give for firing people, especially when the employees fit into the protected classes of women, minorities, homosexuals and adults over 40.



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Ryder TRS, where he was CIO and vice president—Bhasin organized “chat sessions” for the people who remained, encouraging them to share their feelings and imploring them to ask questions about why their coworker had to go. These meetings not only helped his employees, they helped Bhasin as

well. He says that by listening to people talk openly about their emotions, he was able to face his own sadness and distaste for his actions and ultimately overcome them.

Other managers rely on different methods. Boswell, the HR director at SEI, schedules exit interviews with fired employees so

that he can get a better sense of how they regard the termination process. Though some people criticize these interviews as unnecessary, Boswell says the meetings serve some valuable purposes. First, they help HR representatives see how well their system is working. Perhaps more important, Boswell says, by listening to these employees talk about their termination experiences, he becomes a better boss.

“The information we glean in these exit interviews is essential to making the termination process more dignified and sensitive,” he says. “When you’re dealing with people, no matter how you get there, those kinds of improvements are never a bad thing.”

Getting the boot from his first bosses was painful for Inet Financial Services’ Suddreth, but it taught him a lot about how to fire people—and how not to. There are always opportunities for IT leaders to learn by stepping into the shoes of their employees, Suddreth says. He suggests that to understand and prepare for the feelings of abandonment, outrage and incredulity most people feel upon being fired (emotions Suddreth witnessed in January 2001 when Inet laid off most of its staff), managers should sit in on an outplacement counseling session. If that’s not feasible, outplacement experts recommend alternative sources of insight, including role-playing, symposiums and research conducted by agencies like the Five O’Clock Club.

Of course, there’s always the option of experiencing a termination firsthand. While this is the least desirable outcome for most CIOs, Suddreth points out that, frequently, getting fired forces one to rethink a career choice or a life plan. This isn’t necessarily bad. “It’s funny, but I’d say that everything I know about firing, I learned from my personal experience,” he says. “Besides, if I hadn’t gotten fired from that stupid sales job, I would never have gotten into IT.” **CIO**

Have any stories about firing? Send them to letters@cio.com. Matt Villano, a freelance writer in New York City, resigned from the only real job he’s ever had. Reach him at mjv@whalehead.com.

Fire Right

10 secrets to letting people go with dignity

WANT A QUICK PRIMER on how to fire people without bruising their egos? Here are 10 tips, culled from advice CIO obtained from IT executives and outplacement experts.

1. **Give warning.** All performance-based firings should begin with a warning or probationary period. If you let employees know they’re on the bubble, they just might turn things around. If they’ve put in years of service, it’s the least they deserve.
2. **Document, document, document.** Once you’ve told an employee he’s on probation, document every task and interaction. The better records you keep, the easier it will be to justify your actions should you find yourself defending them in legal proceedings.
3. **Time it right.** Fire early in the day and early in the week. The worst time to terminate an employee is the day before a weekend or holiday.
4. **Prepare the paperwork.** Don’t wait until after you fire an employee to deliver termination paperwork. Pay, including any benefits and unused vacation, should be delivered on the spot. This is not only good policy, frequently it’s the law.
5. **Don’t go it alone.** Having a representative from the human resources department in the room adds a sense of gravity and finality to the termination conversation. And if the employee asks a question you can’t answer, your expert is right there. It also provides a witness on your side should you end up in court.
6. **Ensure privacy.** Make it clear that only you and the HR rep will take part in the termination meeting. Reassure the employee that nobody else will be in on what’s happening. Neglecting this will make him self-conscious.
7. **Be brief.** Say what you have to say, say it clearly and don’t say any more. Prolonging the meeting allows the employee to believe he is involved in a negotiation—that there may be a way out. When he realizes there isn’t, he will feel betrayed.
8. **Watch your tone.** Choose your words carefully, but make sure you convey a tone of cordiality and sympathy. Be compassionate but firm, honest but guarded. Never say, “I know what you’re going through”—even if you do.
9. **Seek feedback.** Although it’s important to keep the meeting short, encourage the employee to voice his feelings after the news has been delivered. If he doesn’t answer immediately, count to 20 before moving on. The last thing you want is a reputation for being heartless. If recriminations result, however, take charge and cut him off; remember that you’re declaring him fired, not engaging in a dialogue.
10. **Give a good send-off.** Always offer words of encouragement and confidence in the employee’s future career. Stand and extend your hand to indicate the meeting has ended. And of course, thank the employee for his service. But don’t be surprised or hurt if the employee declines to thank you for firing him.

—M. Villano

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A Tale of two Cities



Dallas CIO Dan McFarland

In Dallas, city officials are hitching their star to the cyberfuture, but its information infrastructure is strictly industrial revolution. In Boston, the challenge is to navigate the treacherous shoals of some of the most serpentine politics in the nation. Two cities, two CIOs, two separate challenges. Only one thing connects them: Neither has enough money to do the job. Come see how these CIOs cope.



Boston CIO Craig Burlingame

BIG D Little IT

In overhauling Dallas's antiquated IT system, the city's first-ever CIO has a Texas-size challenge on his hands

BY ANGELA GENUSA

"It's a nightmare, our Achilles' heel," says Dan McFarland, describing the city of Dallas's antique, homegrown operating system. Suddenly, the last city employee who knows anything about it walks past the glassed-in conference room where McFarland is holding forth. "There goes Harold right there!" says McFarland, the 56-year-old Dallas CIO. "That's the infamous Harold! If he gets killed on an elevator, we're screwed."

Reader ROI

- Discover how Dallas's new CIO plans to overhaul the city's outdated IT
- Learn about the technical difficulties of the project
- Find out about the CIO's unique political challenges

McFarland may be laughing, but he's not kidding. Harold Nogle, 59, is the only programmer left in Dallas who knows the ins and outs of LINC, the city's 32-year-old operating system. No one, not even Nogle, can recall what the initials once stood for. "The majority of the people who worked for the city who were instrumental in implementing LINC have all retired—or are dead," says McFarland. Then, taking a potshot at the technology he inherited when he arrived as CIO in April 1999, he



Dan McFarland, Dallas's first-ever CIO, is a drill sergeant at heart.

roars, "And if they're not, they deserve to be!"

His face grows solemn. "Harold is our foremost expert on [the system]. So when he was over in Europe for three weeks, everybody was breaking out in a sweat. We really are at risk."

Come again? Dallas, the high-tech hub also known as Silicon Prairie, is tottering on a three-decades-old infrastructure supported by one 59-year-old programmer? That's right, McFarland says. "See, all of our key systems are written in LINC, like our 911 dispatch, 311 information, payroll," he explains.

Michael D. Jones, assistant director of CIS, interrupts. "Let me clarify," he says. "Dispatch is on LINC; 911 is not on LINC." "Which is the same thing," McFarland interjects and mimics a 911 caller. "Hey, I'm getting shot!" Operators at 911 take the call, but then dispatch [relies on LINC]. He lowers his voice. "I don't want to describe Armageddon here," he says. "What I want to describe is we really have a plan, and we recognize we have to move on this as quickly as possible. That is absolutely our number-one objective."

City IT Scorecard

Grade	City
A-	Minneapolis
A-	Phoenix
B+	Honolulu
B+	Philadelphia
B	Austin
B	Boston
B	New York City
B	Seattle
B-	Chicago
C+	Denver
C+	San Francisco
C	San Diego
C-	Cleveland
C-	Los Angeles
D+	Atlanta
D+	Dallas
D+	Nashville

Source: *Governing* magazine

Others agree with McFarland's assessment of Dallas's IT. *Governing* magazine gave the city's technology a dismal D+ rating in its recent report "Grading the Cities 2000." "IT has long been a mess in Dallas," said the magazine, a monthly for state and local government officials published by Congressional Quarterly. "Most of the information systems in the city aren't integrated, and it's difficult to get access to the data that exists."

Welcome to McFarland's world. A world that consists of sweating bullets each day over the city's pitifully outdated technology. A world in which his job is to convince City Hall politicians—who

are too busy wheeling and dealing for the latest glamour deal, such as the city's new sports arena or Dallas's bid for the 2012 Summer Olympics—to pay attention to boring computer cabling in the basement. But McFarland isn't the type to boo-hoo in his beer. The CIO—Dallas's first—says he has a plan. A multimillion-dollar, Texas-size plan to toss out the technological tumbleweeds that blow through City Hall and turn it into a 21st century e-government center. He says

he sees IT as the "great enabler" to make city government more efficient and attract top companies and the best and brightest employees. In a move that analysts are calling an "industry milestone project," McFarland plans to rebuild the infrastructure using a relatively new technology that's never been implemented on such a major scale.

Pull it off, and McFarland could walk away a hero. Fail, and he could have a digital version of Boston's Big Dig on his hands. And failure—given that Dallas City Hall is infamously fickle and fractious, the task is king-size, and McFarland's background is chiefly in telecommunications, not IT—is a definite possibility.

Broken-Down Palace

Nationally, Dallas is viewed as a key high-tech center. The high-tech industry is, in fact, growing faster in Silicon Prairie than in Silicon Valley.

Dallas's high-tech sector—made up of the data processing, semiconductor and telecommunications industries—is roughly three times as big as that of its high-tech neighbor, Austin. The region accounts for nearly half of the state's technology revenue and more than 40 percent of Texas's high-tech jobs. The "Telecom Corridor," in the suburb of Richardson, boasts over 600 companies and the largest concentration of telecom companies in the country. Dallas is now



McFarland plans to rebuild Dallas's IT infrastructure with technology that's never been used on such a grand scale before.

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Since he came in, McFarland has turned over 66 percent of the IS staff.

the nation's fifth-largest cybercity in high-tech employment and the largest cybercity in Texas, according to a study by the American Electronics Association.

When it comes to the public sector, however, Big D isn't so big. In *Governing's* report-card rating of 35 cities, Dallas was one of only four to score a D, joining much smaller cities, such as Nashville, Tenn., and Columbus, Ohio, at the bottom of the list. And not only do independent observers give the city's IT the thumbs down, so do City Hall insiders. "Essentially the city of Dallas is behind the times with its technology largely because of its lack of investment in new technology

Just how outdated is the city's technology? The key applications run on the LINC operating system and mainframe computers. The police, city attorney, fire and water departments, and financial management system each have their own local area networks, all 5 to 8 years old, and another, equally old LAN serves all other department systems. Installed in 1985, the city's 911 system has never been upgraded, and it and the 311 system, installed in 1995, must be replaced. Telephones run on an ancient analog Centrex system, and there are more than 5,000 manufacturer-discontinued phone sets for which parts are no longer available. "The

The city of **Dallas** has **eight** database programs, **five** e-mail systems, **six** separate large data networks and **dozens** of smaller networks.

and a lack of leadership to provide the technology necessary to the city," says Robert Melton, the city's former auditor who resigned last summer. McFarland replaced former IS Director David Morgan, who had been with the city for 16 years, and filled a spot that had been run by interim directors during the Y2K critical months of December 1998 through April 1999.

probability for failure increases as the systems get older and older," McFarland says.

Forget integration and standardization. The city has eight database programs, five e-mail systems, six separate large data networks and dozens of smaller networks. Five word-processing systems are used. PCs are mixed with Macintosh computers as are operating systems that range from

Windows 3.0 to 98. Maintaining nonstandardized equipment and software configurations for the 6,000 data users and 8,500 voice users in the city's 36 departments is "literally impossible," McFarland says, and costs the city millions of dollars annually. Dallas offers no e-government services whatsoever, and the city's website, with its slogan, "Dallas, the city that works: diverse, vibrant and progressive," is little more than a City Hall vanity page.

But McFarland insists he can turn all this around—and in record time—putting Dallas's public-sector IT on par with that of Austin, San Francisco and Boston, which won with a solid B ranking from *Governing* magazine (see "The Boston IT Party," Page 86). "We'll be ahead of all of them by the time we're through," he boasts.

The Man Behind the Plan

Some might wonder if McFarland is suited to tackle such an enormous challenge. A ruddy-faced native of Greenfield, Mass., he has a jocular, bull-in-a-china-shop style. When the former Marine Corps officer and Vietnam veteran pitches his master plan, he punctuates it with drill-sergeant-like calls to action. "You've got to go for it!



Help! The city's 911 system has never been upgraded.



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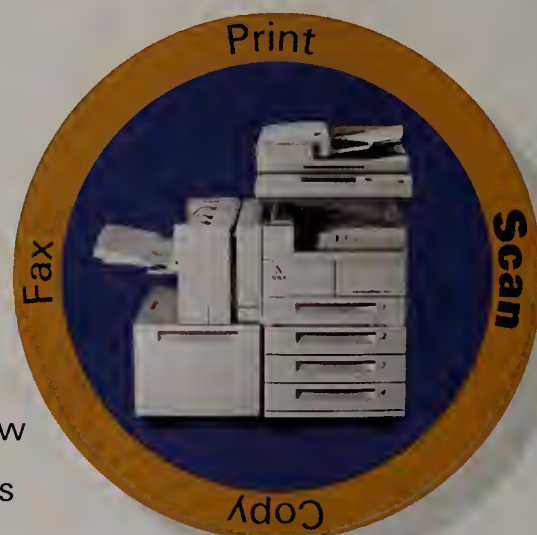
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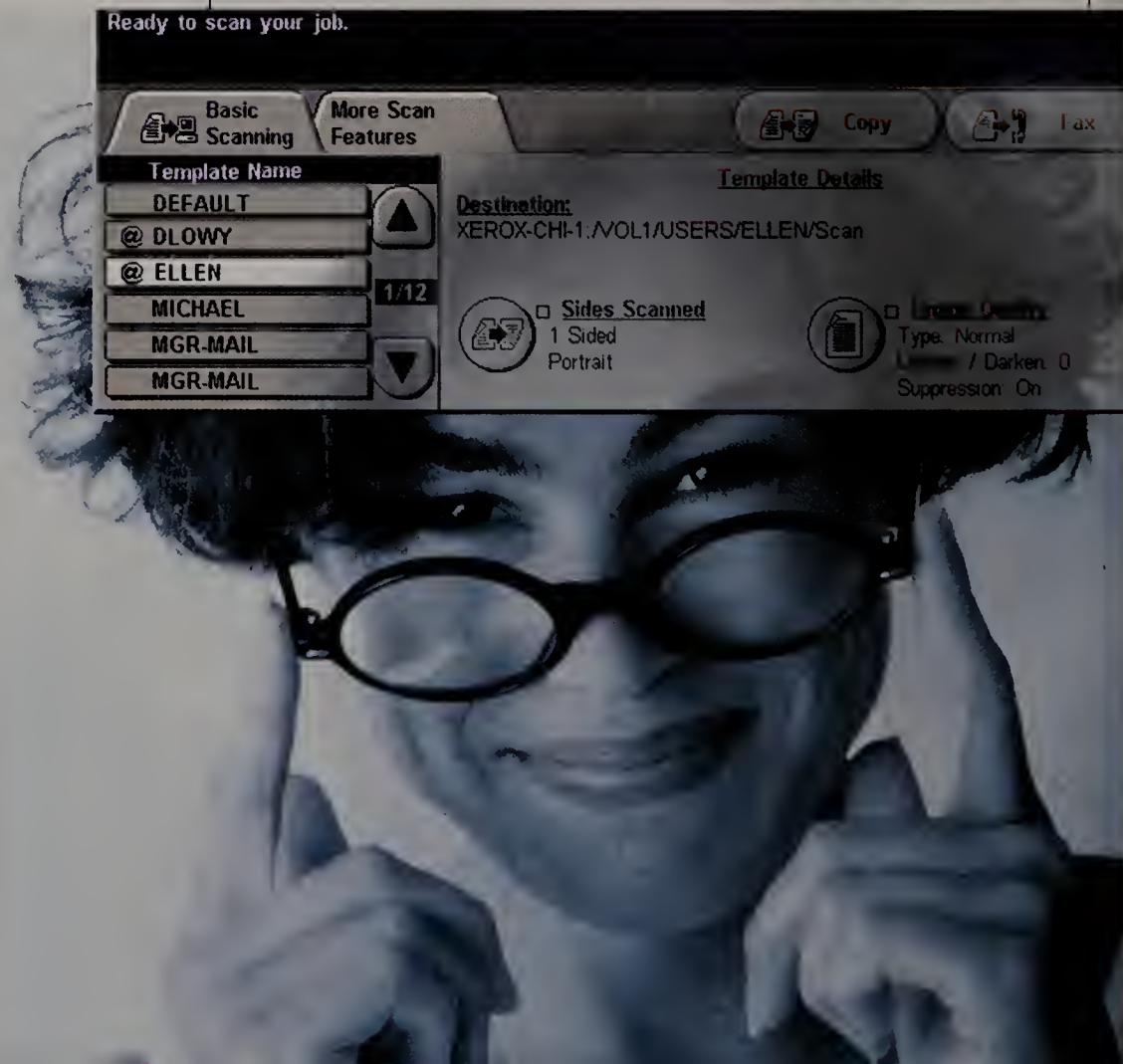


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Former council candidate Sharon Boyd doubts city officials will back the IT overhaul.

Huh! Huh!" He also has a proclivity for hyperbole. When initially interviewed, he stated he had been "the head of IT" in San Francisco when in fact he had been general manager for the department of electricity and telecommunications. McFarland began his career in the telecom industry in 1971 with New York and New England Telephone and Telegraph, where he spent 14 years. From 1985 to 1991, he held various positions with companies specializing in telecommunications and communications networking services. His initiation into the public sector came during his five-year tenure, from 1991 to 1996, in San Francisco.

McFarland's performance there has received mixed reviews. Angela Alioto, former president of the board of supervisors for the city and county of San Francisco, gives McFarland kudos for his handling of multiple contracts in his department during a controversial period in city politics. "Dan was Mr. Information," she says. "I vividly remember Dan always being available, always well-informed and always prepared. One thing has to be said about Dan: He was respected. That's rare when you're in the middle of a storm." However, Ed Harrington, controller of the

city and county of San Francisco, who headed information technology during McFarland's tenure, says, "I don't believe he was viewed as being very successful."

Between San Francisco and Dallas, McFarland was president and chief operating officer of a communications integration systems company in Iowa, followed by two short-lived stints: one as IS director for Boone County, Mo., and another as director of distributed computing services with MCI Systemhouse (bought by Plano, Texas-based Electronic Data Systems). McFarland was appointed to his position as CIO of Dallas, where he reports to the city manager, just eight months before the Y2K deadline. Of his initial thoughts on the condition of the city's IT when he arrived, he says, "Let's just say, it's probably one of the largest undertakings I'd ever make—a daunting task."

Whole Lotta Shakin' Goin' On

Shortly after he was appointed, McFarland began shaking up the IS department. In his two-year tenure, he says, he has turned over 66 percent of the staff. He assembled a new team of direct reports, recruiting Jones and others from the private sector. Jones says, "Working for a city government is usually a very secure environment to work in. It's job security. Now all of a sudden since Dan came on board, it's just the opposite. We're doing massive amounts of change, bringing on new skills sets...."

Next, McFarland prepared a strategic plan by analyzing the findings from several assessments of the city's technology written by consultancies. His recommendation? Tear it down and start from scratch. He ultimately decided on a voice-over-IP package

proposed by Southwestern Bell (SBC Corp.). Voice over IP blends conventional Internet and phone communications (voice and data) into one network and will allow city employees to use a variety of new communications applications. For example, employees can combine voice mail, e-mail and faxes into a single message.

Last fall, McFarland persuaded the City Council to approve a five-year, \$33 million contract with Southwestern Bell. (He won over city councilors by arguing that voice over IP could be implemented within a two-year period and within his existing budget through savings achieved by eliminating ongoing maintenance contracts, circuit costs and other equipment purchases.) Now in its early stages, the project will entail replacing the existing city government computer and phone networks with one integrated voice-and-data pipeline. The entire city government complex will be rewired with approximately 4 million feet (750 miles) of new cable. The network will serve 8,000 city employees at 281 citywide sites linked through core sites including City Hall, the main police department, the library, the convention center and the city's communications complex.

Voice-over-IP technology is still in the early stages of development, and widespread adoption has been slow because of latency and reliability hurdles. To date, it has not been implemented in a project of this size and scale. But McFarland believes the technology is rapidly improving. Besides, he argues, the risk to the city is minimal because it has so little to lose. "Our foundation is failing, our voice network is totally inadequate, and our data networks are not meeting our needs. So, what is our risk? The

"Infrastructure isn't glamorous. Putting in plumbing, putting in pipes and digging ditches—you don't cut ribbons over this kind of stuff."

—Public Technology CIO Donald Evans

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risks of not doing it are far greater.”

In addition to the voice-over-IP infrastructure, McFarland’s master plan includes:

- Open-system servers and commercial software.
- 6,000 new standardized PCs for all city employees.
- A citywide employee intranet.
- E-government functionality on the city’s website for transactions such as parking tickets and building permits.
- A new \$4.8 million 911 and 311 system and a \$9 million customer-request management system for 311.
- Implementing a \$10 million, three-year initiative to install new mobile data terminals in law enforcement and emergency vehicles.
- A new \$11 million automated human resources payroll system.

All this is slated to roll out, in phases, in the next six to 24 months. To accomplish this plan, McFarland will have to make creative use of his annual budget. His fiscal year 2001-2002 budget comprises approximately \$46 million for operating expenses, \$25 million for vendor contracts and \$24 million for capital projects. Also on McFarland’s wish list is a new 800MHz radio system, which would cost \$30 million to \$50 million and would probably have to be funded through a special bond proposal.

The Emperor’s New IT

Is McFarland promising the moon? He certainly has his work cut out for him in Dallas, where, it’s said, the business of City Hall isn’t governing, it’s making money. And Dallas has done that remarkably well. The city’s rate of economic expansion is one of the highest in the nation. But while rolling out the red carpet for high-tech companies, city leaders have largely ignored the public sector. “Infrastructure isn’t glamorous,” says Donald Evans, CIO of Public Technology, a national nonprofit organization in Washington, D.C., dedicated to advancing the use of technology in cities and counties. “Putting in plumbing, putting in pipes and digging ditches—you don’t cut



Asked if he can overhaul **Dallas’s** IT on time, within budget, and without major snafus, McFarland says, “It’s not a problem—if you know what the hell you’re doing.”

ribbons over this kind of stuff.”

Mayor Ron Kirk, in particular, has been criticized by some for his commitment to high-profile, big-ticket projects at the expense of basic city services. In 1999 he persuaded city voters to approve a \$125 million bond to build a new sports arena that will be the home of the Dallas Mavericks NBA basketball team and the Stars NHL hockey team. City leaders have boasted that the arena, slated to open this summer, will be the most wired public venue in the world. Never mind that Dallas currently has one of the most poorly wired city halls in the nation.

“You don’t dare say that the emperor has no clothes,” says Sharon Boyd, a former candidate for the Dallas City Council and editor of an alternative Dallas news website. “No city manager wants to tell the mayor that they need money to upgrade computer equipment or any of the other boring realities of maintaining a city. The mayor does not like to be bothered with details like aging computers

and potholes.” (Kirk declined to be interviewed for this article, as did McFarland’s supervisor, City Manager Ted Benavides.)

Boyd believes that the Dallas political machine—notorious for initially underfunding and overhyping projects and leaving managers high and dry when costs balloon—will not back McFarland when he comes to them for additional funding. If the current information technology overhaul goes over budget, McFarland would have to go back to appeal to the City Council for either more funds or a bond proposal to be pitched to taxpayers. “I see real money not coming to him when it’s time to start spending it,” Boyd says. “This isn’t the kind of

thing that Ron Kirk likes to go out and sell to the public.”

A cold hard look at the figures in the city’s fiscal budget does make one wonder if all the talk about making Dallas the most wired city hall in the nation is just that—talk. Out of an overall \$1.8 billion budget, the city is allocating \$24 million for technology improvements. IT ranks right up there with parks and recreation, which is getting a \$17 million piece of the pie.

Despite all the obstacles, his sketchy IT background and skepticism from critics, McFarland believes he can pull it off. When asked if he thinks he can overhaul the city’s IT on time, within budget and without major snafus, he says, not once but three times, “Yes we do!” And then he adds, “It’s not a problem—not if you know what the hell you’re doing.” **CIO**

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The Boston

The city's CIO has a tall order: uniting the tribes through information technology

BY STEVE ULFELDER

IT Party

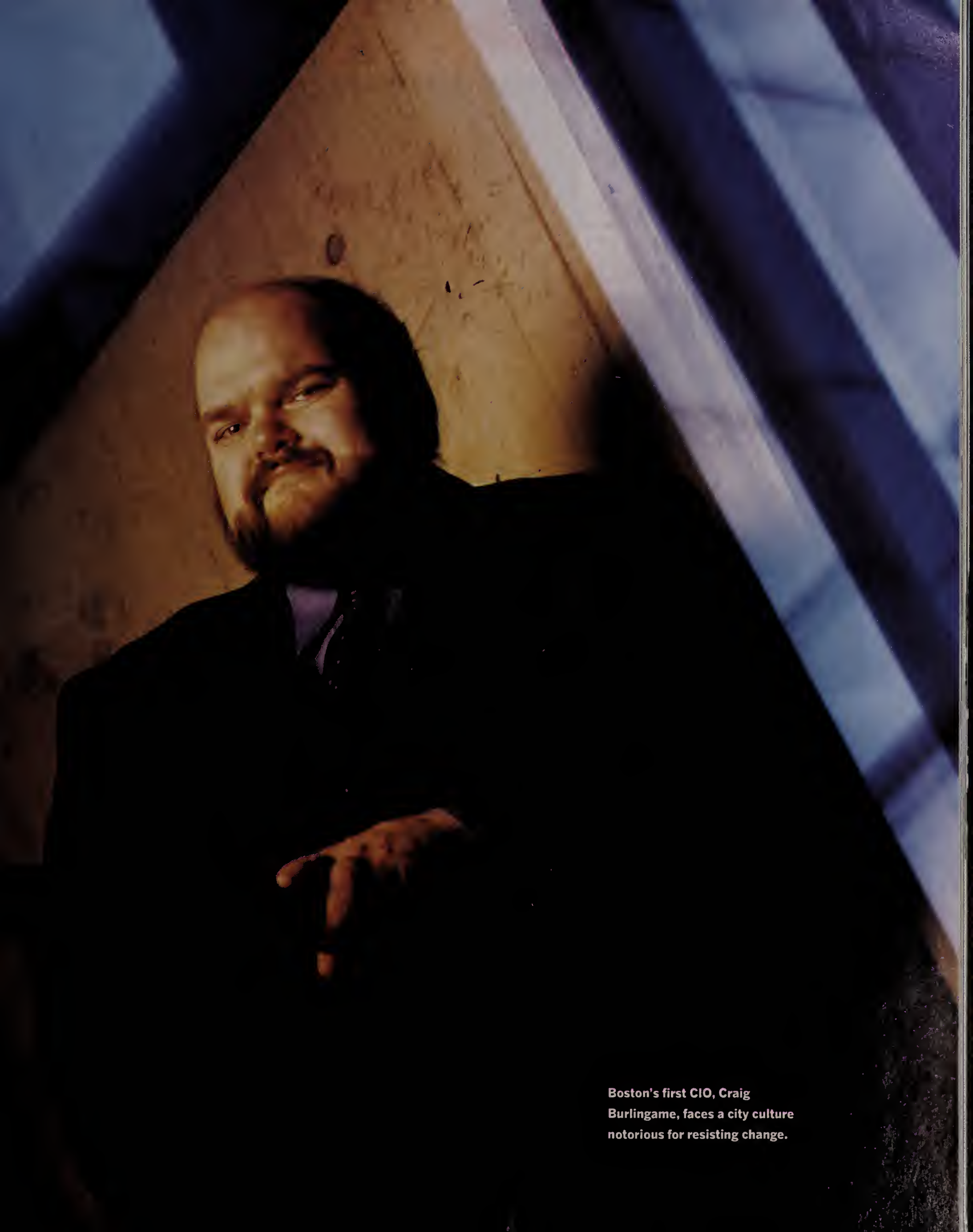
Boston is known not only for the tribalism of its distinctly bounded neighborhoods but for the competing rivalries of its city departments, each intent on carving out as much financial and political clout as possible. Consider, for example, what

happened on March 5, 1999: A Melrose, Mass., bread delivery man was badly injured when his truck rolled over him at a South Boston warehouse. The victim, a man by the name of Carlos Calderon, waited nine minutes for an ambulance dispatched by the city's EMS department, even though a fire department ambulance was sitting only a mile away. The fire department was not notified of the emergency because it was feuding with

Reader ROI

- ▶ Compare your challenges with those facing public sector CIOs
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PHOTO BY GEORGE SIMIAN



Boston's first CIO, Craig Burlingame, faces a city culture notorious for resisting change.

Right: Boston City Hall looks like a parking garage, only less homey.

Below: Boston Mayor Thomas M. Menino, an aggressive politician who seldom shows up late for a photo-op, wants IT he can brag about.



“A lot of these **technology** guys come in with the **razzle-dazzle**. Craig is very **down-to-earth**.”

—Mayor Thomas M. Menino

the EMS over who got to answer which emergency calls. Carlos Calderon died of his injuries.

Calderon's death may, of course, be an extreme by-product of the city's historic turf battles. But there's no question that Craig Burlingame, the city's first-ever CIO, has a tall order: unite the tribes through information technology in order to deliver more services more efficiently to taxpayers.

In mending ancient rivalries, Burlingame, who came on board in November 2000, enjoys some very modern assets: a top-notch Internet link and an existing IT program already rated in the top third of its class. *Governing* magazine, which grades municipal governments on a variety of competencies, recently gave the city of Boston's IT a B, placing it solidly in the top third of the 35 cities ranked by the magazine's Government Performance Project. *Governing's* criteria

included effective IT planning, timeliness of procurement, quality of training and ROI measurements, among others. (Altogether, the cities included in the ranking averaged a miserly C+.)

Burlingame also has the support of an assertive mayor in his corner as well as a strong track record in government IT. But these two assets may prove a double-edged sword. Boston Mayor Thomas M. Menino, an aggressive politician who seldom shows up late for a photo-op, wants IT he can brag about. Soon. And then there are those who suggest that importing a leader from the private sector could provide a good swift kick in the city's posterior. Plus there is the city's storied aversion to changing the way it does business. Alan Altshuler, a professor of urban policy at Harvard's John F. Kennedy School of Government, once told *The Boston Phoenix*, “Boston is probably as

resistant a culture as you would find anywhere in the country,” owing largely to patronage and powerful municipal unions.

So while Burlingame has established a reputation as a strong government IT manager able to persuade disparate factions to cooperate, it's fair to wonder how well a man who is known for his easygoing style will do in the cut-and-thrust of Boston politics, where previous reform efforts have done about as well as the luckless Red Sox.

A Self-Taught Expert

Boston City Hall looks like a parking garage, only less homey. Poured concrete, inside and out. Nevertheless, Burlingame's seventh-floor office is impressive; large enough to hold a regulation-size conference table, it also features a knockout view of Boston Harbor. Not bad for a 39-



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Boston City Councilor Michael Ross was among the people initially concerned about Burlingame's lack of formal education.

year-old who lacks a college degree and has spent most of his career in the public sector.

Originally from Cape Cod, Burlingame—a burly, bearded man—is a self-taught computer hobbyist who got his start at age 18, working part-time for the town of Barnstable, whose first mainframe he programmed on a wing and a prayer. “We were trying to computerize and having a tough time,” says Barnstable Town Manager John Klimm, who was a selectman in 1981, when Burlingame began coming around. He says the quiet high-school volunteer worked wonders with the system, a feat that most of the older town employees resented. Even so, “they recognized his talent,” Klimm says. “He took us from major problems to being a model [computerized] community for that time,” while property-assess-

ment and tax-billing functions were run by the mainframe.

After high school, Burlingame stuck around, eventually becoming Barnstable's first IS director. In this position, he established a reputation—very rare at the time and still far too rare today—as a technologist who could discuss IT in layman's terms. Klimm laughs when recalling some of Burlingame's “interesting experiences,” trying to persuade Barnstable government's elders to make use of the fancy new computer. But the town manager hastens to add that Burlingame nearly always succeeded. “He brought a ton of patience,” Klimm says. “He's a master at speaking plain English.”

In 1993, Burlingame took a job with the Commonwealth of Massachusetts' Criminal History Systems Board, which tracks offenders in the criminal justice system. And in 1997, after more than a decade of work in the public sector, Burlingame took a CIO position at the Massachusetts Executive Office of Public Safety, which oversees a broad range of people, programs and agencies—from maximum-security prisons to bulletproof vest reimbursement for police, to school violence prevention.

At Public Safety, Burlingame honed his skills at eliminating stovepipes and convincing grudge-bearing groups to meet at the conference table. Early in his tenure in 1994, his IT group created a centralized database for police departments that included data on known criminal offenders: convictions, parole and probation status, and so on. According to Burlingame and Michael Ross, who previously worked in the city's MIS department and is now a Boston city councilor, the major difficulty in implementing

the warrant management system was political: “The data came from sources under control of different agencies,” Burlingame says. “And some agencies didn't want to give up that data.”

Burlingame had a sell job on his hands. His approach, which he hopes to continue in Boston, was to show hostile agencies that if they set aside rivalries and shared their information, there would be something in it for them. He started with the Massachusetts Parole Board, whose officers had “gone berserk” over the plan, according to Ross.

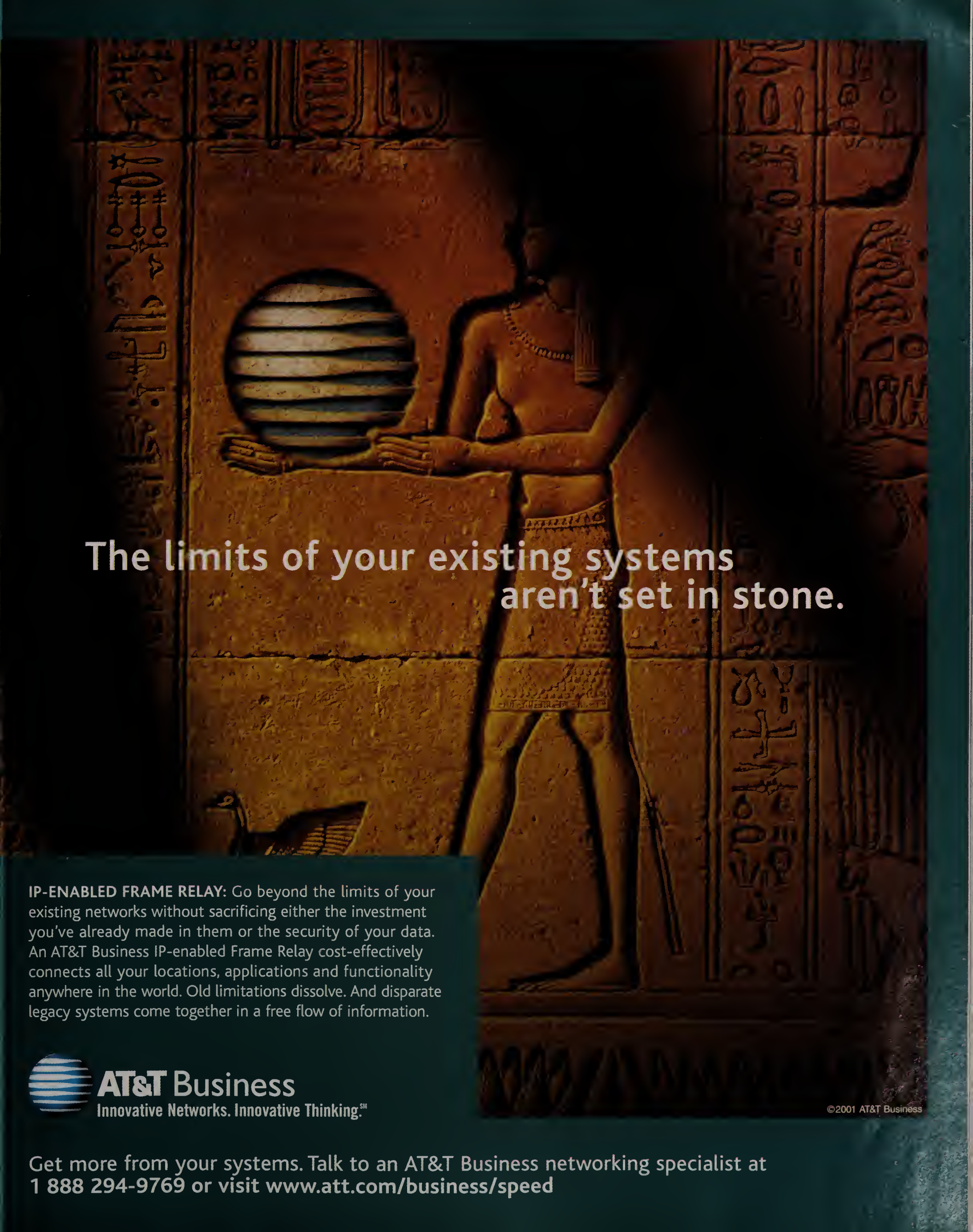
After assuring Parole that the police database was sound—with adequate security and guarantees that data would be used appropriately—Burlingame offered a carrot, redesigning the database to give feedback. Thus, any time a police department made an inquiry, Parole learned of it. This alerted the department to many parole violations they wouldn't have known of otherwise. Parole revocations increased significantly, and word got around the extensive Public Safety community. “Soon, other departments started to call,” Burlingame says. “They wanted in too.” Ross remembers the episode as an impressive display of diplomacy by Burlingame.

If he doubted it beforehand, his stint at Public Safety taught him that “governments do tend to grow into stovepipes,” Burlingame says. “That was the challenge: getting people to work on IT in a collaborative way.”

In 1998, Burlingame left Public Safety for another state post, this time as assistant commissioner of IT at the Massachusetts Department of Social Services. In November 2000, Menino lured him back to local government (albeit large-scale local govern-

“Governments do tend to grow into stovepipes. That was the challenge: getting people to work on IT in a collaborative way.”

—Boston CIO Craig Burlingame



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Boston's \$11 million IT operating budget compares favorably to other cities its size.

ment) as Boston's first-ever CIO. Once again, Burlingame's abilities as a plain speaker stood him in good stead. "He's not overbearing," Menino says. "A lot of these technology guys come in with the razzle-dazzle; they want to blind you with it. Craig is very down-to-earth."

Ross echoes both the sentiment and the locale. "Craig comes from the ground up," he says. "I like that."

One casualty of Burlingame's rapid career climb has been a formal education. While he's taken courses that interested him, both in computer science and other fields, his credits fall far short of a degree. During the interviewing process, some city councilors (the board reviews all major hires) were concerned about his lack of formal education.

Ross was one. Before joining the city council, he helped launch the city's website, which he ran for two years. "I brought up the college issue," he says of Burlingame. "When at the chief level, you need sound management practices under your belt."

After talking with the candidate, though, Ross says he and other city councilors were persuaded Burlingame's real-world experi-

ence has taught him those practices—probably better than any college could. "Do you want an academic type, or someone who's pulled [himself] up by the bootstraps?" Ross says.

Burlingame concedes that his lack of a formal education is a hole in his résumé and plans to work toward a degree. It's easy to see why his new boss would be sympathetic; Menino earned his own college degree, from the University of Massachusetts at Boston, at the advanced age of 45.

Eliminating the Fiefdoms

Though he is Boston's first CIO, Burlingame inherits an IT program that many cities would envy. After all, in *Governing's* national survey, Boston ranked higher in IT than 31 of the 35 other cities, including Baltimore; Columbus, Ohio (about the same size as Beantown); Los Angeles; San Jose, Calif.; and Houston. Dallas was at the bottom of the heap with a D+. (See "Big D, Little IT," Page 76.) The only cities ranked higher than Boston were Minneapolis, Phoenix, Honolulu and Philadelphia.

Burlingame's IT operating budget is \$11 million, which compares favorably to other cities its size. Columbus's Information Services budget in 2000 was \$9.7 million; Minneapolis's was \$15 million. Boston's department has about 82 employees, compared with Columbus's 107 IT workers.

Burlingame also inherits a respectable website as well as something more valuable tucked away in the basement of city hall: a one-hop link to a major regional Internet backbone. Before Burlingame was hired, "The city worked with local [ISPs] to put in a metropolitan exchange that we host," he says. "So we get a 100MB pipe of our own, piped straight into our infrastructure." Hosting a metropolitan exchange (MXP) is quite a prize; Burlingame thinks the next-closest MXP is in New York City.

CityOfBoston.gov provides the usual informational services—an event calendar, contact information for Boston officials, permit application forms and so on. It also lets residents pay parking tickets, and excise and real estate taxes online—a clear if small step toward interactivity that Menino and Burlingame hope to build on. Moreover, Boston recently retooled its human resources and financial services system with a major PeopleSoft implementation. The new tools won special praise from *Governing* magazine because before the implementation, these departments were a decades-old mess. Payroll alone was handled by three different systems.

The upgrade is not an unqualified success, however. There is rumbling in some quar-



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ters that the Accenture (formerly Andersen Consulting) consultants helping to implement the project have overstayed their welcome and ought to be ushered out of town. Ross calls the PeopleSoft implementation “a huge HR project laden with consultants.” Indeed, Boston’s IT budget shows a steadily escalating expenditure for contract analysts;

creating a truly unified structure—will mean eliminating decentralized fiefdoms. The department’s major initiatives for 2001 include completing a wide area network to link various agencies. According to the city budget, 87 percent of city buildings were on this WAN in 2000; the goal for 2001 is 100 percent.

Once they saw Virtual Boston, other agencies—including the police and fire departments—thought of ways they could use the digital map too. As a result, Transportation has shared the resource with several other agencies.

The new CIO faces another type of cultural challenge: simply persuading agencies to alter the way they do business. Tyler points to Boston’s Purchasing Department as an example in desperate need of modernization. Presently, the city posts its requests for proposals online but otherwise makes no use of the Internet for procurement. “That’s a great example of an opportunity that’s not been fully uti-

lized,” Tyler says. “They’re still using mostly paper. [Purchasing] could use an overhaul. It should embrace technology much more than it does now.”

In their recent book, *Powering Up: How Public Managers Can Take Control of Information Technology*, authors Katherine Barrett and Richard Greene list bullet items for CIOs in states and cities to focus on. The list boils down to coordination, communication and standardization. The authors add, “Even more important [than technology skills] are the managerial-political skills required to manage a large cadre of workers and to relate effectively with governors, mayors, legislators, citizens and all the other stakeholders who play a role in this field.”

Those who know him say that Burlingame brings to the table political astuteness, universally praised technical knowledge and a reputation as a strong communicator. “He’s a people person,” Barnstable Town Manager Klimm says. “People don’t feel threatened by him.”

Boston will soon find out if that’s the right recipe for its first CIO. **CIO**

Are you using IT to weld warring factions together? Let us know at letters@cio.com. Ulfelder writes for *CIO*, *Darwin*, *The Boston Globe* and other publications. You can contact him at sulfelder@charter.net.

Boston has a long history of “a culture of knowledge-is-power. Sharing has not happened on a widespread basis.”

—Samuel R. Tyler, president of the Boston Municipal Research Bureau

the department spent about \$538,000 on IT analysts in 1999 and has budgeted more than twice that—\$1.1 million—for 2001.

Burlingame concedes that weaning off Accenture will be a challenge, but he commits to no time line. And Ross agrees that the new CIO “may need to get some small victories before tackling that one.” An Accenture spokesman says the company has contracted with the city “into the summer of 2002” and declines further comment on how long the engagement will last. In the background (but never for long) hovers a mayor who wants not just results, but sexy results. From efforts to reduce the number of students per classroom computer to teacher technology training, to community tech centers, to computer kiosks, Menino has publicly declared an ambitious suite of programs. Publicly, Burlingame, who calls the mayor his top asset, says that’s fine by him. “This guy knows the technology is important. He doesn’t think of it just as making the city run more efficiently.”

Boston’s solid IT foundation may be a bit like a good-news-bad-news joke for Burlingame. On the one hand, he doesn’t have to clean up the technology wasteland faced by CIOs in many other states and municipalities. On the other, the relatively easy work is done, and what remains—

The city has budgeted almost \$5.5 million to complete a new system that will unite dispatch services for the police, fire and EMS departments. Once that is finished, city officials hope, there will be no more senseless deaths due to departmental squabbling.

Sharing Is Power

Persuading feudal government agencies to share information may be Burlingame’s stiffest challenge. Boston has a long history of “a culture of knowledge-is-power,” says Samuel R. Tyler, president of the Boston Municipal Research Bureau, a financial watchdog group funded by businesses. “Sharing has not happened on a widespread basis.” According to Tyler, this is where Burlingame needs Menino most. “The mayor must make it clear that this is the direction he wants his administration to go,” Tyler says. “Craig’s going to need the mayor’s support on an ongoing basis.”

As an early victory in this unification effort, Burlingame points to The Virtual Boston project. Last year, the city’s Transportation Department hired GeoSpan Technologies to drive 800 miles of Boston roads with specially equipped vans that created a very detailed visual map of the roads and surrounding environs.

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THAT START OUT ON
A SMALL SCALE CAN
BECOME OVERLOADED
BECAUSE OF PRESSURE
TO GROW THEM FAST.”

-Carol Stewart



DATA STORM AHEAD

Forecasting and good planning are the keys to piloting the enterprise through the high winds of information overload, says MetLife's data chief Carol Stewart

BY STEWART DECK

CAROL STEWART HAS WATCHED DATA PILE UP LIKE OMINOUS DIGITAL clouds on the information horizon. And as vice president of data administration at the Metropolitan Life Insurance Co. (MetLife) in New York City, it's her job to predict when those clouds will burst and to find ways to disperse them before they overwhelm MetLife's systems.

Stewart supervises a group of 180 experts who oversee the insurance giant's nearly 600 production databases and who work on all of MetLife's data and database applications. With the constant need for more and better customer information, Stewart has seen

Reader ROI

- ▶ Learn what infrastructure decisions are important in dealing with data overload
- ▶ Hear how MetLife's organizational structure helps it corral data
- ▶ Discover some of the top data-related issues for 2001

MetLife's data-handling needs grow explosively. The number of MetLife production databases has more than doubled in the past three years, and Stewart's data team has grown by more than 60 percent (with each staffer supporting 80 percent more data applications) in the same period. With no slowdown in sight, Stewart feels MetLife has weathered the storm primarily by adding a new messaging architecture layer to the enterprise and by accurately forecasting database needs and planning accordingly. Stewart also cites the formation of a centrally organized team of database experts with varied backgrounds as key to MetLife's data success story.

CIO: How do you foresee a potential data overload coming?

Stewart: One of the chief indicators would be an increasing demand from people in the business community for information—when you see the same information in your organization being copied or replicated to service a number of different functions. When you say, “Wait, I’ve just set up 45 different databases that all fundamentally hold the same information,” then you know you need to start thinking more architecturally in terms of enterprise strategy. What’s also happening is that you may have started capturing a lot of data, but the real overload comes in figuring out how to organize it and get it back to the people who need it in order to make decisions.

Also, some data projects that start out on a small scale can become overloaded because pressure comes to grow them fast. If they weren’t originally built to scale up or handle a massive load, it can get overwhelming.

What trends today are causing organizations to change how they deal with data handling and storage?

Improved customer service—which everybody, every company in America, is after—requires that we maintain more information about our customers. The bar is being raised on customer service in all industries. Customers expect a level of service that probably wasn’t available four or five years ago. Also, marketing departments are looking for more information about customers and potential customers.

This means more information has to be kept online—not back in old-fashioned microfiche—and more historical information needs to be kept as well because we need to know what’s been happening over the last time period in a way that we didn’t need to in the past.

How important is speed?

The speed with which IT or businesses need to be able to respond to opportunity has jacked-up exponentially in the past few years.

When I started in this business, it was absolutely fine for a businessperson to come along and say, “I think we need to do such and such a study,” and somebody would disappear into the tape archives

and come back six months later and say, “We got the data!” That’s absolutely unacceptable at this point. Now, that information needs to be there fast, preferably immediately.

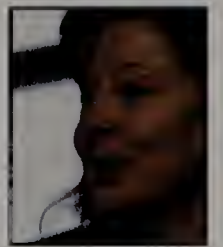
What other factors affect data architecture and infrastructure plans?

I think the major indicators that are going to tell you which way you need to go are the latency requirements—that is, how much of a delay there is in accessing data. If the business purpose of this joining of information requires zero latency, in other words immediate access and responsiveness, then you can’t, for example, do data warehousing because warehousing by definition has a fair amount of delay associated with it. But if the business purpose requires heavy analytics, then you’re definitely in the warehousing space. It tends to be one or the other. You don’t usually find a business need for heavy analytics going along with a zero latency data.

How do you recognize what the business requirements will be?

Within the IT group at MetLife we have a governance board that consists of the CTO and line-of-business CIOs who get together fairly often. It becomes very obvious as people’s concerns or programs hit that table where the trends are and what’s coming. So I would say that it tends to be through the process of discussion. When

“IMPROVED CUSTOMER SERVICE—WHICH EVERYBODY, EVERY COMPANY IN AMERICA, IS AFTER—REQUIRES THAT WE MAINTAIN MORE INFORMATION ABOUT OUR CUSTOMERS.”



we see multiple businesses asking for the same sort of thing, it becomes really clear that we’ve got something important going on here. For example, the idea of 24/7 availability of major information storage—that’s a demand clearly driven by our increasing presence on the Internet.

There are a number of different strategies that you can take to solving something like the 24/7 problem. And at the end of the day, much of it comes down to two questions: Are we really talking 24/7? Maybe we want to look at some other ways of achieving the business objective that are less costly, be it 23/7 or 24/6.

The second question is: What are we prepared to pay for it? There are occasions when you do in fact have to get to 24/7, and there’s a cost associated. So there’s always a discussion about value.

What’s been your approach to 24/7 at MetLife?

We’re putting in place what we call our message box. It’s a very

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ironclad, high-availability piece of infrastructure that allows unencumbered messaging—an infrastructure layer that makes it much easier and cheaper for applications to communicate with each other—with guaranteed delivery across all the various applications and platforms.

This is a robust, highly available infrastructure component that is easy for the various applications to jump onto. The key here is that it helps contain our costs because when you spread it across a number of different functions it makes the costs associated with it less expensive. In many cases, it also allows us to deliver the application function to our business units and hence, to the marketplace that much more quickly.

How do you pitch the idea that there is a return for this kind of investment? Or the notion that something almost as esoteric as a universal-messaging layer can really pay off?

It was relatively easy to look at the message system costs and average those out and say to the business: “Now, an average kind of application that does this costs you X. If we were to build a robust infrastructure, not only will you get the advantages of speeding time-to-market, but this is going to pay for itself by the time you’ve built three average applications.” This particular system was not a difficult sell at all because a number of the line-of-business CIOs were very familiar with the kind of messaging work going on at the time in their own shops and understood because they were privy to some of the bills what was involved in the cost. So the CIOs were convinced there would be a payoff in terms of cost savings and efficiencies.

MetLife’s type of central data administration group sounds unusual.

We have 180 people with three distinct skill sets: database administrators, middleware specialists and data analysts. We consider ourselves the center of excellence around all things associated with data and application integration because the way you get applications talking to each other is by moving data around in some form.

A lot of the business literature and management consulting groups will say that they consider this kind of organization a best practice. But having said that, I haven’t actually seen it anywhere else. The value in it is severalfold. First, it provides a sort of vertical integration from the base capabilities that you have to have in order to support production databases in middleware, up through the design of those databases, up through information architecture. You can get a view across the entire enterprise from a central spot. So, there’s a lot of value there. The second real, bottom-line piece of value is that middleware and database and even data design specialists are very expensive and in high demand. So, when you run a central group, you get to leverage those expensive resources more broadly across the enterprise with just about no downtime.

What issues are you focusing on in the coming year?

One that I think is coming to the fore—and is again being driven by our exposure to customers over the Internet—is data quality. [See “Wash Me,” *CIO*, Feb. 15, 2001.] It’s an endemic problem: As you get more data, and as you have to drive the latency down, you’ve got less time to fix it. You also need to share that information across wider and wider parts of your organization because the

“THE SPEED WITH WHICH I.T. OR BUSINESSES NEED TO BE ABLE TO RESPOND TO OPPORTUNITY HAS JACKED-UP EXPONENTIALLY IN THE PAST FEW YEARS.”



user may not be in the department that collected it in the first place and therefore doesn’t understand the quirks [such as abbreviations or shorthand]. I think this problem has become much more visible and needs more serious attention than it probably has in the past.

What other issues are you focused on?

XML. If you’re in B2C or B2B, you’d better be focused on XML. There are some things about it that are very attractive; there are some things that are also quite scary. For example, it sucks up an awful lot of bandwidth and computing time as you’re stripping the stuff apart.

Also, which XML should we pay attention to?

There are a million of them out there. How do you reconcile all of these standards? Do you need some sort of thesaurus that will allow you to translate from one standard to another on the fly? At the end of the day, you probably do. Well, guess what? It doesn’t exist. Do we build it? Do we wait for it to be built and buy it? Do we just fiddle around with the concept this year? There are a lot of those questions in the XML space.

Is there a theme to these questions, to these plans?

Customer service again. I guess that’s my theme for today and for the year. In order to provide the service level that clients expect, we need to keep available much more information about the services that we’re currently providing and about the communications that we’ve had with them in the past. That’s what’s driven us in the past and will continue to push us this year. **CIO**

Is the push for improved customer service swamping your data management plans? Contact Staff Writer Stewart Deck at sdeck@cio.com.

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- ▶ Learn how strategy evolves when an established business is spun off and faces life on its own
- ▶ Hear why Delphi's IT team wants to build unity by creating common systems
- ▶ Find out how process information officers match IT solutions with user needs

*When GM spun off its parts division,
the fledgling IT department of the brand-new but
century-old \$29 billion company had
to piece together processes from the ground up*



OF PARTS

BY SARAH D. SCALET

DELPHI AUTOMOTIVE SYSTEMS CEO J.T. BATTENBERG III RANG THE opening bell at the New York Stock Exchange on Feb. 5, 1999. This marked the symbolic beginning of Delphi's transformation into an independent entity. The newly spun-off auto parts division of General Motors already had a 100-year history but until then had little incentive to be price-competitive. The company would have to start wooing

new customers—instead of relying on a single captive customer who topped the Fortune 500. Delphi now had its own stockholders watching the bottom line. To cope with these sweeping changes, the company needed to build a separate identity that was nimble enough to survive hard times in Detroit.

The IT team was ready to help, but it wasn't going to be easy. Until 1996, GM's IT department—and by extension Delphi's



Delphi VP and CIO Peter Janak plans to make strategic information available on the company's intranet in order to stimulate creative problem solving.

IT department—was under the thumb of an outsourcer: Plano, Texas-based Electronic Data Systems (EDS). For more than a decade, says Delphi CIO and Vice President Peter Janak, “EDS provided what their individual customers asked them to provide, and we became a very fragmented company as a result. We ended up with no IT strategy, really, just technical solutions.”

While that was already changing, Janak knew he had to con-

sider the strategic planning processes begun under GM. At the same time, his department needed to plunge into Delphi's primary goals—common and improved business processes that would build unity, save money and pave the way for rapid global acquisitions and divestitures. Janak is pleased with the results thus far, but there's plenty of work ahead.

IDENTITY CRISIS

ONCE A SMALL PART OF ITS \$185 BILLION parent, today the Troy, Mich.-based Delphi is a \$29 billion company that makes everything from ignition systems to onboard multimedia devices. “When you're part of GM, you don't feel like you're very big,” says Bette Walker, CIO of Delphi's energy and chassis division, which generates 40 percent of Delphi's revenue. “But when you're independent, all of the sudden you realize—whoa.”

Auto industry pundits, who are divided on whether Delphi's parentage is a blessing or a curse, haven't helped these identity problems. “I don't want to say they're too big, but the size of [Delphi] could be a challenge,” says Richard Hilgert, vice president of auto research at the First of Michigan divi-

sion of Fahnestock & Co. in Detroit. Large or small, old-line manufacturing companies aren't exactly known for their agility.

GM's official rationale for the spin-off was to increase shareholder value and make both companies more competitive and focused, but some wondered whether the Detroit-based automaker was casting off an underperforming division. Meanwhile, rival Ford Motor Co. was facing a similar end to its history of vertical

PHOTO BOTTOM LEFT COURTESY OF GM CORP. 2001; BOTTOM RIGHT BY STONE/DAVID YOUNG-WOLFF

DELPHI AT A GLANCE

Time Line

While a relatively new entity, Delphi has a history dating back more than 100 years. Here's a look at the company's milestones.

1908	1936	1967	1973	1984	1992	1993	1995	Sept. 28, 1995
General Motors is founded.	First car radio.	GM builds its 1 millionth car.	First air-bag restraint system.	GM turns its IT function over to EDS.	GM executive J.T. Battenberg III is named CEO of the Automotive Components Group (ACG).	First collision warning system installed on school bus.	The CEO of GM's Automotive Components Group (ACG) renames it Delphi.	Groundbreaking ceremony for Delphi world headquarters in Troy, Mich.
								

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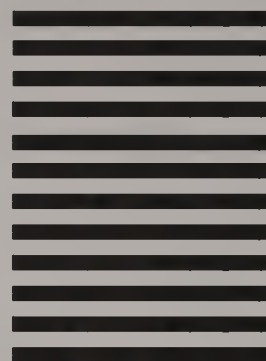
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Strategic Planning

integration. Visteon Corp., spun off from Ford in June 2000, is now an independent auto parts company second only to Delphi.

The IT department itself was also in flux. GM CIO Ralph Szygenda was hired in 1996 to regain control. A year later, Szygenda and Delphi's CEO hired Janak to build a focused IT group for the auto parts division. Janak immediately started expanding his staff of CIOs. Delphi now has seven divisional CIOs and four regional CIOs, all of whom jointly report to Janak and a divisional or regional president. Janak also created positions for two additional process information officers (PIOs)—a role established by Szygenda that straddles IT and business functions to ensure IT solutions meet user needs. Delphi's hierarchy now includes PIOs of engineering, business systems and supply chain. Each process information officer reports jointly to Janak and to the functional business executive equivalent. (See "A Functional Relationship: The PIO," Page 108.)

SOWING THE SEEDS OF STRATEGY

THESE CIOs AND PIOs, ALONG WITH A CTO and a manager of global programs, form the strategic IT planning team that bridges what the business needs done and what the IT department is actually doing. Led by Janak, the Information Management Task Team (IMTT), meets on the third Tuesday and Wednesday of each month at a traveling meeting. Those who can't attend in person teleconference in and follow the presentations with Microsoft's Netmeeting.

This structure has increased the

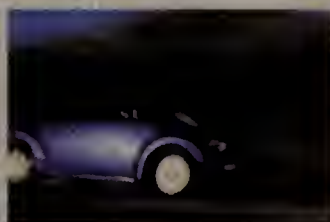
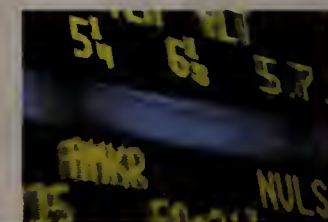
quality and quantity of communication, which is a refreshing change. When Delphi was part of GM, team members didn't know how to communicate. "It was just like, I would say, 'Do you walk to school?' and they would say, 'No, I carry my lunch,'" divisional CIO Walker says.

These days, the members act more like a team. "We get into



Bette Walker, CIO of Delphi's energy and chassis division, says, "When you're part of GM, you don't feel like you're very big. But when you're independent, you realize—whoa."

PHOTO BOTTOM LEFT COURTESY OF GM CORP. 2001; BOTTOM MIDDLE BY STONE/BOB TORREZ; BOTTOM RIGHT BY IMAGE BANK/GRANT V. FAINT

1996	1998	Jan. 1, 1999	1st Quarter 1999	Feb. 5, 1999	May 28, 1999	Fall 2000	June 2000	4th Quarter 2000	Feb. 5, 2001
EDS is released as GM's IT outsourcing partner. GM hires its first CIO, Ralph Szygenda.	GM's CIO and Delphi's president hires Delphi CIO Peter Janak.	Delphi's IT operations are separated from GM.	GM accounts for 78.3 percent of Delphi's business.	Delphi's stock (DPH) goes on sale at the New York Stock Exchange. Closing price: \$18.44.	Delphi fully separates from GM.	Delphi signs deals with Alfa Romeo, Lincoln-Mercury, Renault, Volkswagen and Volvo.	Ford Motor Co. spins off its auto parts division, Visteon Corp.	GM accounts for 69.8 percent of Delphi's business.	Closing stock price: \$15.16
									



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A Functional Relationship: The PIO

Delphi has a new player when it comes to process development and control—the process information officer

Depending on your point of view, Doug Schafer is an engineering guy who talks IT or an IT guy who talks engineering. “An engineer might say, ‘I need change control.’ [But] you go to an IT guy, and they do change control on software, and it’s not the same,” Schafer says. He bridges those two worlds as a process information officer (PIO) for engineering at Delphi Automotive Systems.

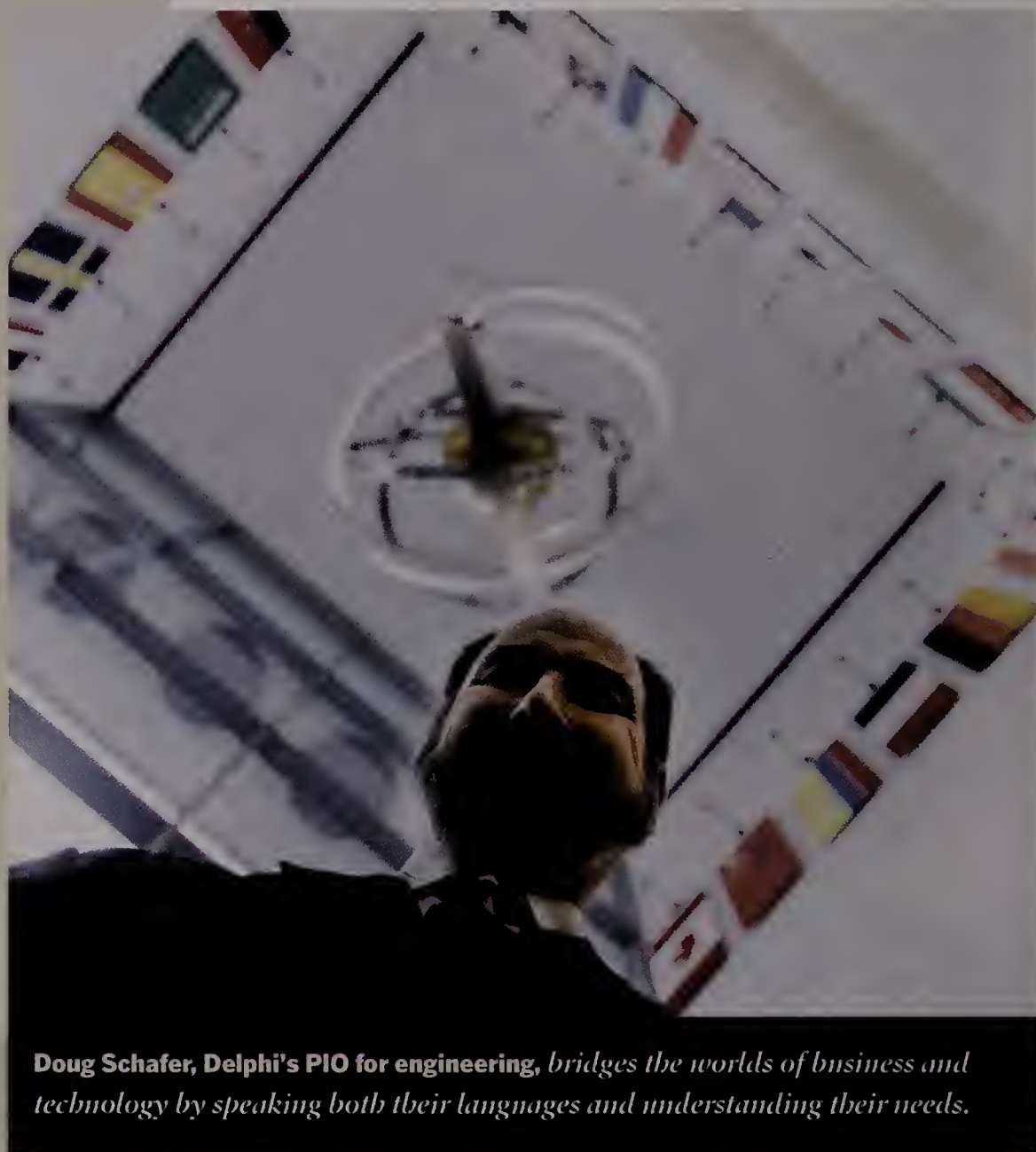
The PIO model was implemented at General Motors when Ralph Szygenda took over as CIO in 1996, and it’s become an integral part of how Delphi Automotive makes sure its IT solutions meet user needs. In addition to the engineering PIO, Delphi has a business systems PIO (who covers finance, treasury, customs, human resources, sales and marketing, and legal) and a supply chain PIO (whose territory is production control and logistics, manufacturing and purchasing). All three PIOs work closely with a high-level counterpart on the functional side and with several cross-functional committees, and they represent their function’s needs as members of the IT strategy board. For instance, when the IT management team was developing its global engineering system, Schafer’s job was to articulate what engineers needed and help develop a system that worked.

“The role helps us truly understand the business requirements and therefore align what we’re doing with the business,” says Delphi CIO Peter Janak. “It doesn’t mean that all of us aren’t interested in business strategies. But the PIOs, their job is to dedicate themselves to this space, this crossover.”

—S.D. Scalet

arguments, we discuss things, we have a good time, we laugh a lot,” says CTO Gary Robertson, who sets the agenda and keeps the meetings on track. “It’s a pretty high-energy day.”

The business strategies established by Delphi’s executive board are the IMTT’s commandments, and the vision statement for the team is focused on Delphi’s newfound customers. Every IMTT initiative must directly support one or more of Delphi’s business strategies, with “improved and common business processes” topping the list. The IMTT has thus far focused on three global initiatives: an ERP system members hope will standardize processes and reduce staffing needs; a global engineering system that will



Doug Schafer, Delphi's PIO for engineering, *bridges the worlds of business and technology by speaking both their languages and understanding their needs.*

standardize the desktop tools used by every engineer around the world and feed into the ERP system for manufacturing purposes; and a new network that has connected 95 percent of Delphi’s 40,000 desktops to one intranet. All this, the IMTT believes, will lower costs through economies of scale, help the company’s far-flung units behave like one company, and help Delphi be a price-competitive and efficient choice for its customers.

Theirs isn’t the only team working toward these goals. From the IMTT level, look up or down Delphi Automotive Systems’ hier-

what

direction

are your

strategic projects

heading?



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Strategic Planning

archy and you'll see the same type of structure, like some bureaucratic hall of mirrors. The IMTT is the middle level of a three-tier process. Look up and see the Delphi strategy board, the executive-level group to which the IMTT and eight other Task Teams report, all with their divisional, regional and functional representatives. Look down and see Janak's CIOs fanning out and getting their hands dirty, with their own organizations modeled after that of central IT. It may seem like a color-coded maze of double-headed reporting relationships and acronymed committees and subcommittees, but it's no more dizzying than the thought of supporting 211,000 employees in 42 countries.

Janak's staff communicates strategy right down to frontline IT employees taking care of the most nitty-gritty details. At least that's the theoretical approach, Janak says. This is something Delphi continues to work on. To that end, about 150 IS managers worldwide attended a conference last year to discuss major strategies and look for new ways to solve problems. Janak also plans to make strategic information available on the company's intranet.

Harvard Business School professor Robert S. Kaplan says the difficulty of communicating strategy throughout an organization is often a major challenge to making that strategy work. "In the automobile industry—which comes from a 100-year heritage of scientific management—employees were not expected to think; they were expected to do," says the coauthor of *The Strategy-Focused Organization* (Harvard Business School Press, 2001). "That's no longer sufficient. We need people in the front lines of shared service groups to do their jobs differently and better." Kaplan says creative, entrepreneurial employees can be tremendously valuable—but only when they know their organization's strategic objectives. (See the excerpt of his and David P. Norton's book in CIO's Reading Room at www.cio.com/books.)

NEXT AGENDA ITEM

DELPHI'S STRATEGIC PLANNING ISN'T PERFECT, JANAK ADMITS, pointing out what he calls the pimples in the process. For exam-



Gary Robertson, Delphi's CTO, says Delphi's CIOs truly function as a team at the monthly meetings. "We get into arguments, we discuss things, we have a good time."

ple, having the IMTT involved in an e-business pilot program avoids expensive redundancies that might confuse the customer, but it also raises questions about funding. Walker jokes to Janak that if other divisions use a system her division developed and paid for, maybe she should see some payback. For the most part, individual divisions fund their own projects and global programs are paid for based on the proportion of sales, users, employees, plants or other factors.

Other problems involve juggling what's best for an individual business unit versus what's best for the company as a whole. The IMTT is the forum where these things get sorted out, Janak says, noting that "all the members of the IMTT are Delphi people first." Bonuses and stock value are tied to the company's overall performance. Besides, the only alternative to compromise is taking the disagreement to the Delphi executive strategy board. Characteristically, Walker puts it bluntly: "Who the hell would want to do that?"

As the IMTT works out the kinks in its planning processes,

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Strategic Planning

team members are moving on to the next major items on the strategic hit list: facilitating global expansion, and expediting acquisitions and divestitures. Growing parts of the business that are the most profitable—and selling parts that aren't—is critical to Delphi's business strategy.

When Delphi can quickly integrate a new unit, it doesn't have to buy temporary IT services from the divesting company. When Delphi can quickly divest a unit, it doesn't have to spend time providing IT services during the transition. Joint partnerships are also common. For instance, Delphi might form a joint venture with the Chinese government to create a product for the Chinese auto market. In such cases, the controlling partner typically sets up a temporary IT system.

Automotive industry analyst Hilgert points out that making the right investment decisions is as critical for Delphi as for any large business, and Janak knows that being able to immediately turn IT solutions on or off is something his division needs to develop. "We haven't quite figured out how to do that," Janak says. "We've got to get more commonality in our own systems." In this regard, he expects ERP to pay off in spades, despite all the woes that continually make headlines. In three to five years, when Delphi has fully deployed a version of SAP, he's optimistic the company will be able to more easily add or subtract parts of its business.

A TOUGH ROAD AHEAD

AS MUCH AS ANYTHING, THOUGH, this move toward common systems is motivated by cost. "If you have one way of doing things, it's less expensive and less hassle and takes fewer people to run," says Doug Schafer, PIO for engineering. Excess production capacity and overstock within the industry is causing fierce price competition, say Janak and

other industry watchers. These are somber days at GM. Exxon Mobil Corp. recently ousted the automaker from its number-one spot on the Hoover's 500 (a list of the largest U.S. enterprises that's updated more often than the annual Fortune 500).

Hilgert thinks Delphi is where it needs to be in its efforts to cultivate non-GM deals. GM made up 69.8 percent of Delphi's business in the fourth quarter of 2000, compared with 78.3 percent in the first quarter of 1999. That shrinking percentage makes only the headlines about other Detroit-area automakers (with stories of plant clos-

ings, layoffs and lawsuits) all the more gripping. Janak is confident of IT's role in helping Delphi stay on top, but when asked how he measures what the IMTT has already accomplished, there's a pause. "It varies and could be better," he says. "If you're putting in something like a new communications network, and cost or service level is a consideration, you can measure those pretty directly.... What gets difficult is measuring productivity." That may sound backward, but Janak says it's difficult to demonstrate when a new ERP desktop, for instance, results in the same number of employees doing more work.

Nevertheless, team members are amazed at what they've been able to accomplish thus far. They're focused on the tasks ahead—not the fact that Delphi's stock price is hovering around \$15, after opening at \$18.44 in 1999. "We did learn a lot," Walker says, reflecting on everything the IMTT has gone through since Delphi was spun off. "We got a lot done, but you know, we always could have done better. It's easy to sit out there and be a Monday-morning quarterback." **CIO**

Senior Writer Sarah D. Scalet, who comes from a Ford family, wants to hear how your company is dealing with acquisitions and divestitures. Tell her at sscalet@cio.com.



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- Headquarters in Detroit
- 388,000 employees in 50 countries

DELPHI AUTOMOTIVE SYSTEMS CORP.

- #61 on Hoover's 500
- \$29 billion in revenues in 2000
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A key partnership led to victory in Prescient Markets' bid to build a financial services website for big corporations

BY STEVEN GNAGNI

Paper Trails

The Company: Prescient Markets

Employees 50 **Headquarters** White Plains, N.Y.

Founded February 1999

Funding \$4.5 million from private companies in November 1999; \$15 million in August 2000, led by TH Lee.Putnam Internet Partners

Mission Providing an online trading platform for large issuers of short-term notes of corporate debt

Key move In August 1999, Prescient partnered with Bridge Information Systems to provide back-end support for its planned trading site

URL www.cpmarket.com

IN MAY 1999, LAURENT PAULHAC presented his little-known startup to some of the nation's biggest companies and won the chance to build them a website to support important financial transactions—and in the process make his new company profitable.

Like others with Internet ambitions, CEO Paulhac brought an entrepreneurial zeal to the table. But his company, Prescient Markets, was also smart enough to grab an expert partner well-known to his prospective customers when the opportunity came along. Now Paulhac and his team are busy building add-on services and planning future expansion of the Cpmarket.com site.

More on Cpmarket.com's business model in a moment. First, here's a brief primer about what's traded on Cpmarket.com—the "CP" in the website address. CP stands for commercial paper, which is a short-term note that allows large companies like Ford and Citigroup to float millions of dollars in debt from one to 270 days. Often, it's a way for these companies to manage their cash flow. The buyers of commercial paper—mostly institutional investors and large financial institutions—loan large chunks of money to the CP issuers, who agree to pay the money back after the set period with about 6 percent interest. The Security and Exchange Commission estimates that at any one time there's about \$1.5 trillion in outstanding CP.

In between the buyers and sellers is a broker, and that's where a business like Cpmarket.com comes in. It makes money not from buyers (who are given access to the site free of charge), but by charging the issuer, or seller, a small percentage commission.

It's into this world that Paulhac brought Prescient Markets. In spring 1999, Paulhac pitched this plan to some of the world's biggest corporations: Let Prescient build a website that will become a central place for both issuers and buyers of commercial paper to do business. It'll



Prescient Markets' CEO Laurent Paulhac (left) and VP Mark Weichselbaum convinced customers their startup could handle big-money transactions.

Picking Paper

The Cpmarket.com story starts even before the RFP existed. Out of college, Paulhac, 31, had worked first as a consultant and then for several years as a software developer at financial services companies. By 1998, he had decided to strike out on his own to develop an electronic platform for a high-volume commodity. He decided on commercial paper; while a few CP issuers had started to sell their own paper directly via their websites by that time, no one offered a centralized CP trading platform.

From the beginning, Paulhac's business model was to achieve critical mass. It's the Priceline.com model of doing business. First, you get a few companies—whether it's airlines, grocery stores or, in Paulhac's case, CP issuers—that are willing to sell products online. Then you go after consumers. Then you go back to sign on more companies, and the cycle begins: As more consumers sign on, more companies sign on. Eventually the site succeeds.

Paulhac's first move was to meet with eight corporate treasurers, learn more about the mar-

ket and try to get a few of them to sign on. While they expressed interest, none of those issuers (who were all members of the Direct Issuers Working Group) felt they could hand the job to a startup without an evaluation process. So in April 1999, shortly after Paulhac had met with the issuers, the group sent its RFP to 13 companies.

Credibility Gap

Paulhac knew he faced a huge obstacle in competing against other bidders: credibility.

The solution came in the form of a man named Tom Wendel, then CEO of New York City-based Bridge Information Systems. (Wendel retired in October 2000 and was not available for an interview.) The two were

provide all the back-end support and security required. And the company will make it easy to use and cheaper than traditional means. (Paulhac says Cpmarket.com expects to attract sellers by making his fees about half traditional broker rates, which run between 0.02 percent and 0.05 percent.)

It was an attractive idea. Thirteen others, including London-based Reuters Group, State Street Corp. of Boston, Armonk, N.Y.-based IBM and New York City-based TradeWeb, received requests for proposals for the same project. A group of 19 major commercial paper issuers called the Direct Issuers Working Group (DIWG), including General Electric Capital Corp., Ford Motor Co. and American Express,

conducted the RFP process.

Prescient Markets' win was a testimony to Paulhac's knowledge of his customers and his formation of a partnership with New York City-based Bridge Information Systems, one of the largest providers of financial data and technology in North America. David Rutter, president of Bridge's e-commerce arm, eMarkets, says that Paulhac knew the CP market and how it worked, "and we're a large global market data company. It ends up being a pretty compelling partnership. But I don't think either [of us] would've won it alone."

The 19 companies in the DIWG that issued the RFP became Cpmarket.com's first customers.



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introduced by a mutual friend, and Paulhac told Wendel about the upcoming RFP, which would also be going to Bridge, and of his hope to win the bidding process. After 45 minutes, Paulhac says, Wendel interrupted him and suggested the two collaborate on a website proposal.

Bridge's technology infrastructure (including its St. Louis-based Technology and Trading Center) solved Paulhac's credibility issue. In May, Prescient and Bridge submitted a joint bid to the issuers' group. Eight weeks later, the group announced the two companies had made the short list.

The issuers' technical committee arrived first, in late July, and Prescient's new offices still reeked of fresh paint. Paulhac and his staff showed the committee a prototype of the website, including how transactions would be made. The Prescient staff and committee members then packed into a limousine that took them to the White Plains airport where Bridge's private jet awaited and whisked them off to Bridge's St. Louis technology center.

"Prescient was able to bring forward a full-blown solution," says Sigal Zarmi, assistant treasurer of IT at GE Capital and a member of the technical committee. "They had stress testing, volume testing and 24/7 technical support."

Three more Q&A sessions followed. The next week, Paulhac presented to the issuers' business committee with Wendel at his side. Two weeks later, Paulhac and Rutter, the head of Bridge's e-commerce arm, answered four hours of additional questions. Finally, two days later, Paulhac was called to Newark, N.J., to answer a few last questions and learn his team won the bid. "It was Dom Perignon in the Prudential Center," Paulhac says.

Bridge, which owns a minority stake in Prescient, filed for Chapter 11 bankruptcy protection in February. Bridge continues to operate—and to provide website hosting and financial markets information services to Prescient. In March, Paulhac said Prescient was continuing with this arrangement as the company evaluated alternatives.

EXPERT ANALYSIS BY DANA STIFFLER

Pick the Right Market—and Stay There

Here's the mantra: Technology is revolutionizing global capital markets. Better access to information democratizes markets and cuts trading costs. These trends will squeeze Wall Street profit margins. Heads will roll.

Well, yes and no. Mostly no, in fact. The operational guts of most trading processes remain essentially unchanged, five-plus years into the Internet era. This is particularly true in the fixed-income arena, a huge market where Prescient Markets is one of a handful of IT providers that has managed to thrive. Because established players have a great deal riding on the status quo, success here depends on achieving a fine balance: Provide a solution that is good, but not too good, and don't step on anyone's toes.

Prescient Markets has succeeded in doing exactly this by zeroing in on commercial paper (CP), a market where volumes are high, margins are thin and no significant secondary market exists. In other words, most dealers are not as tenacious about protecting their CP operations as they would be about, say, their municipal bond business. Also comforting from the large corporations' point of view was the fact that Prescient Markets was not trying to reinvent the wheel. These companies had already issued commercial paper directly for a while; in the past year, Ford Motor Credit and American Express have issued CP from their websites. Prescient Markets improved the process by aggregating this activity and putting it online, resulting in benefits for issuers and investors alike.

Prescient did well to partner with Bridge, a known quantity with a global presence. Despite Bridge's financial difficulties and the stability of its systems, it's hard to see Prescient claiming that its platform would be capable of shouldering Ford and GMAC's commercial paper operations without Bridge. Another crucial step was securing substantive support from some very heavy hitters in the Direct Issuers Working Group, particularly GE Capital. GE Capital's part in the Cpmarket.com pilot test made all the difference.

Now comes the hard part. Since commercial paper is essentially a commodity market, it is inevitable that someone will undercut Prescient, possibly a large investment bank, possibly Bloomberg or Reuters. Prescient's efforts to offer value-added functions (debt management software, integration tools) and excellent customer service will therefore become increasingly important. As for expansion, the lateral move into the burgeoning European CP market makes good sense. However, if Prescient moves upstream into occupied e-markets, such as municipal securities, they will be extremely hard-pressed to compete.



Dana Stiffler is an emerging trading technologies analyst at Meridien Research in Newton, Mass. She can be reached via e-mail at dstiffler@meridienresearch.com.

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The Transformation Begins Here.™

Once selected, Prescient, which named its website Cpmarket.com, worked to get agreements from all 19 members of the DIWG. (Since then Paulhac has added a few more issuers.) And while none of these issuers committed to putting a certain percentage of their transaction volume on the site, four members of DIWG decided to invest in second round financing along with TH Lee Putnam Internet Partners.

GE Capital was one of seven issuers that participated in a pilot of Cpmarket.com in May 2000, and by late October, the company began running some major volume over the site.

"Right now, [GE Capital's] transaction volume over Cpmarket.com is less than 5 percent," says Mark Barber, vice president and assistant treasurer of GE Capital. GE issued \$3 trillion in commercial paper in 1999, and if GE's transaction volume on Cpmarket.com was a modest 3 percent that would be \$90 billion in notes being sold through Cpmarket.com, giving Prescient Markets a commission of at least \$9 million. (Again, most dealers charge a commission of between 0.02 percent and 0.05 percent, and Paulhac claims to halve those rates.) That's not bad, given that GE Capital is just one of Cpmarket.com's 26 issuers.

Next come the traders. Trading firms that sign up with Prescient establish passwords and accounts for individual traders and then establish agreements with issuers, who must set their systems up to accept trades from each subaccount. Finally, Paulhac will go back to attract more issuers and so on.

In March, Prescient announced it had issued \$50 billion in commercial paper on Cpmarket.com since its June 2000 launch. Paulhac says he expects to reach break-even in mid-2002.

Nuts and Bolts

There are two ways to enter the Cpmarket.com site—as an investor or issuer. Each brings up slightly different menus and screens.

The CP buyer, or investor, has five basic buttons. The first two allow the investor to

see interest rate information and make trades in one of two environments: HTML or Java. The Java option automatically updates real-time information. The HTML version currently refreshes every two minutes and will soon refresh every 30 seconds. Tools on the

Heavy Hitters

These companies issue commercial paper on Cpmarket.com

American Express Credit Corp.
Associates First Capital Corp.
Chevron Corp.
Citigroup
The CIT Group
DaimlerChrysler Corp.
Deere & Co.
Deutsche Bank Financial
Exxon Mobil Corp.
Ford Motor Credit Co.
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site allow investors to do a quick rate analysis. "It allows me to comparison shop and immediately execute," says Joe Tully, managing director at Prudential Global Asset Management in Newark, N.J., who buys CP using the site and does, on average, 5 percent of his trading there.

The other side of the system is the CP issuer interface. Issuers have two basic trading windows, called a console and a blotter. The console allows the issuer to set rates for CP, and the blotter allows the user to view pending transactions and daily trade activity. (The blotter is also available in either HTML or Java versions.) Issuers can

set the blotter to allow automatic transaction approval or approve trades one-by-one. In addition, issuers have the option of enabling straight-through processing (STP), which means that when a trade is processed, the data is automatically and instantly mapped to the issuer's back-office system. Only a few issuers using Cpmarket.com have the STP capability in their back-end systems at this time.

All of this works on a BEA Systems WebLogic server that employs an Oracle database and Sun Microsystems' Enterprise Java Beans, which power the trading and allow real-time display of transaction approvals and market changes.

Finally, with so much money being passed back and forth, Prescient Vice President for Product Development Mark Weichselbaum says the company decided everything on the Cpmarket.com website—even the homepage—should be secure and encrypted. The site features 128-bit SSL encryption and a digital certificate that authenticates each individual website user.

So far, Cpmarket.com has been offering one type of CP called 3(a)(3) and plans to offer a different kind of CP called 4(2), which has a slightly longer maturity period and is regulated as a security. Prescient is also looking to add fee-based services to the site.

On the issuer side, Prescient is thinking of providing debt management software as a Web-based application. Debt management systems traditionally cost millions, and Paulhac believes smaller issuers would pay a monthly fee for Prescient and Bridge to manage the server side of it.

Paulhac also would like to move into European markets. "There are regulatory issues that have to be solved. But my view is that we could get support [from the European market], and then establish broader support," he says.

Paulhac may be dreaming, but he's faced long odds before. **CIO**

Steven Gnagni (sgnagni@yahoo.com) is a freelance writer in Brooklyn, N.Y.

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DEADLINE FOR ENTRY: JUNE 15, 2001

Daren Austin, (left) controller,
and **Tadd Tellepsen**, IT director
of Tellepsen Services, are using
asset management precepts
to track construction equipment.



All Seeing, All Knowing

Asset management is not just for IT anymore

BY ESTHER SHEIN

Reader ROI

- ▶ Find out why and how asset management can help the whole organization
 - ▶ Read about the technology that helps the enterprise track equipment and space
 - ▶ Learn how the CIO can help the company and raise IS's profile at the same time
-

YOU'D THINK IT WOULD BE PRETTY DIFFICULT TO lose sight of something as large as an earth excavator. But tracking the whereabouts of the heavy machinery across 14 states had become a cumbersome process for Houston-based Tellepsen Services Co. (TEPSCO). So the construction management services company turned to a Web-based system that now allows the company to quickly and easily locate its equipment and monitor usage—saving both money and time. ■ “It’s not for the theft issue, but because we’re concerned about asset utilization,” says Tadd Tellepsen, IT director of the family-owned company. “We’ve been tracking it manually, but we’re planning to become decentralized so that people closest to the equipment can hop on the Internet and input information. We want to make sure [equipment] is not sitting idle and be able to figure out

PHOTO BY PAM FRANCIS

Bob Matkovich, project manager of ground support equipment at United Air Lines, says that asset management is helping the airlines better manage safety projects.



if we can schedule it somewhere else.”

When TEPSCO fully implements the new tracking system, Tellepsen says he expects to realize a savings of about \$250,000 annually. The savings will come in several areas of improved efficiency, including no longer wasting money on renting equipment that could be more quickly deployed from other construction sites. Using asset management tools that have been honed in IS, TEPSCO construction managers will simply log on to the website to do status checks on where equipment is located at any given time.

Whether it's construction trucks, hospital equipment or even building space, asset management is not just for tracking IT resources any longer. Although some industry observers say asset management software

was originally developed for financial departments to track depreciating assets, the Y2K problem focused the tools squarely in the IT realm, because IT needed to know everything it had and what would be affected by the date conversion. As a result, IT became the watchdog for its assets and began tracking hardware and software leases and maintenance agreements.

But today the tools have evolved into ways to manage other corporate assets throughout their life cycle—and again IT is leading the way. With companies under constant pressure to reduce costs and improve productivity, the ability to figure out what you own, where it is and whether it's being used is a process of growing importance to enterprises. Using the principles of asset management beyond IT

can help companies avoid redundancies in procurement and track resources like lease deadlines more efficiently.

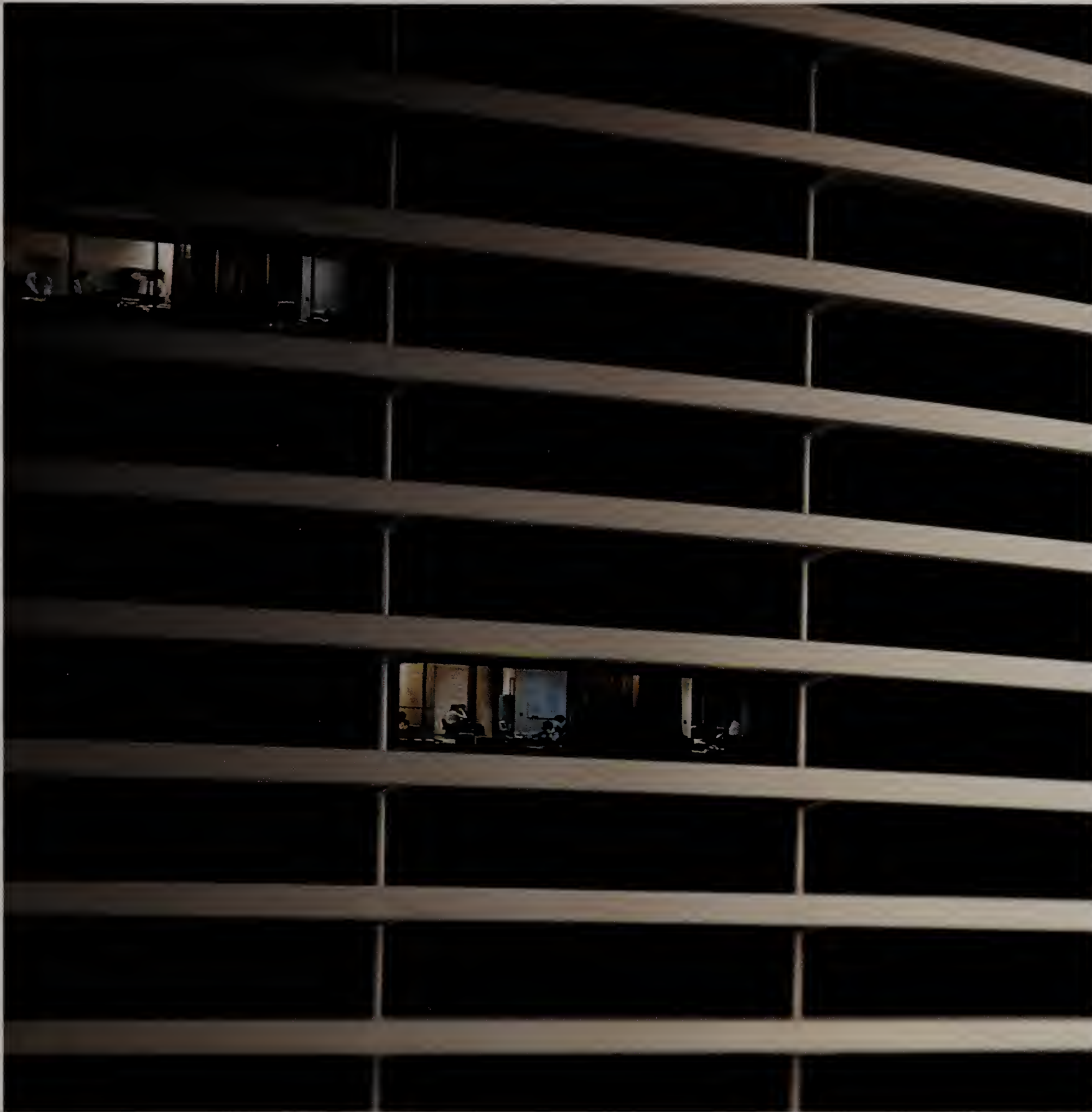
And this is an area where CIOs have an opportunity to shine. An asset management system is still a tool used primarily by IT organizations. But by being an evangelist for asset management—preaching the cost- and time-saving benefits—the shrewd CIO can help his business *and* get some brownie points in the executive office. In addition, Web-based asset management startups are helping companies recoup some of their investment in resources by auctioning off equipment that is no longer needed or that has reached the end of its life cycle (see “Going, Going, Gone,” Page 128).

“What's really interesting today is that companies are moving in the direction of ‘Now that we have this information [on assets], what can we do with it to get the best value?’” notes Tim Minahan, research director of e-business at the Aberdeen Group in Boston. Essentially, asset management software has the potential to make a company and its assets liquid, says Minahan, meaning that it can not only find out what the value of an asset is, it can also assess how to mine it or use it for future benefits or cost savings. “If there's a new trend, it's more intelligent asset management; not only tracking the asset but really looking at the information and merging it with what's going on in the external marketplace,” Minahan says. Companies can use the information they glean about an asset to determine such issues as the best auctions to sell to, the tax implications of disposing of an asset and the technology innovations that will impact the asset's future—for example, how long a shelf life it actually has before becoming obsolete, he says.

KEEP ON TRUCKIN'

TRACKING AND DEPLOYING LARGE EQUIPMENT is a major challenge for construction com-

FOR MOST COMPANIES and organizations, utilizing asset management technology outside of IT still remains an elusive concept.



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“IF THERE IS A NEW TREND, it’s more intelligent asset management; not only tracking the asset but really looking at the information.”

—Tim Minahan, research director of e-business, Aberdeen Group

panies with far-flung projects. Until launching its asset management system pilot, TEPSCO relied on manual processes to monitor almost \$10 million worth of “yellow iron,” such as excavators, side booms, tractor-trailers and bulldozers. Tellepsen says they also track some smaller items that run around \$3,000 apiece, like generators and welding machines. Since the equipment is located around the country, the old method of tracking assets via word of mouth and spreadsheets caused some inefficiencies. “Many times we don’t know if [a piece of equipment] is being utilized or not,” he says. “And many times we end up renting something we actually own that we could haul over if we knew the status of it, how far it was from the site, who’s using it and for what purpose.”

Now, TEPSCO plans to use the Web-based product from Houston-based iVita Corp. (www.ivita.com) to input information about its approximately 600 pieces of equipment to the global positioning system (GPS) that iVita uses. Tellepsen says that TEPSCO also plans to implement a GPS that will speed up equipment monitoring efforts even more. “A device goes on the equipment, and it’s linked to a satellite that tracks it and reports back to the software so we know where it is,” around the clock, Tellepsen says. Under this system, iVita essentially acts as the ASP for TEPSCO, a benefit to the midsize company that can’t afford the staff and IT equipment needed to support such a system.

Using asset management principles and software to track equipment is a “slam dunk” according to Tellepsen. “Because if you’ve got stuff all over the country, and you can’t put your eye on it, and it’s expensive, then this makes sense,” he says.

ASSETS ON WHEELS

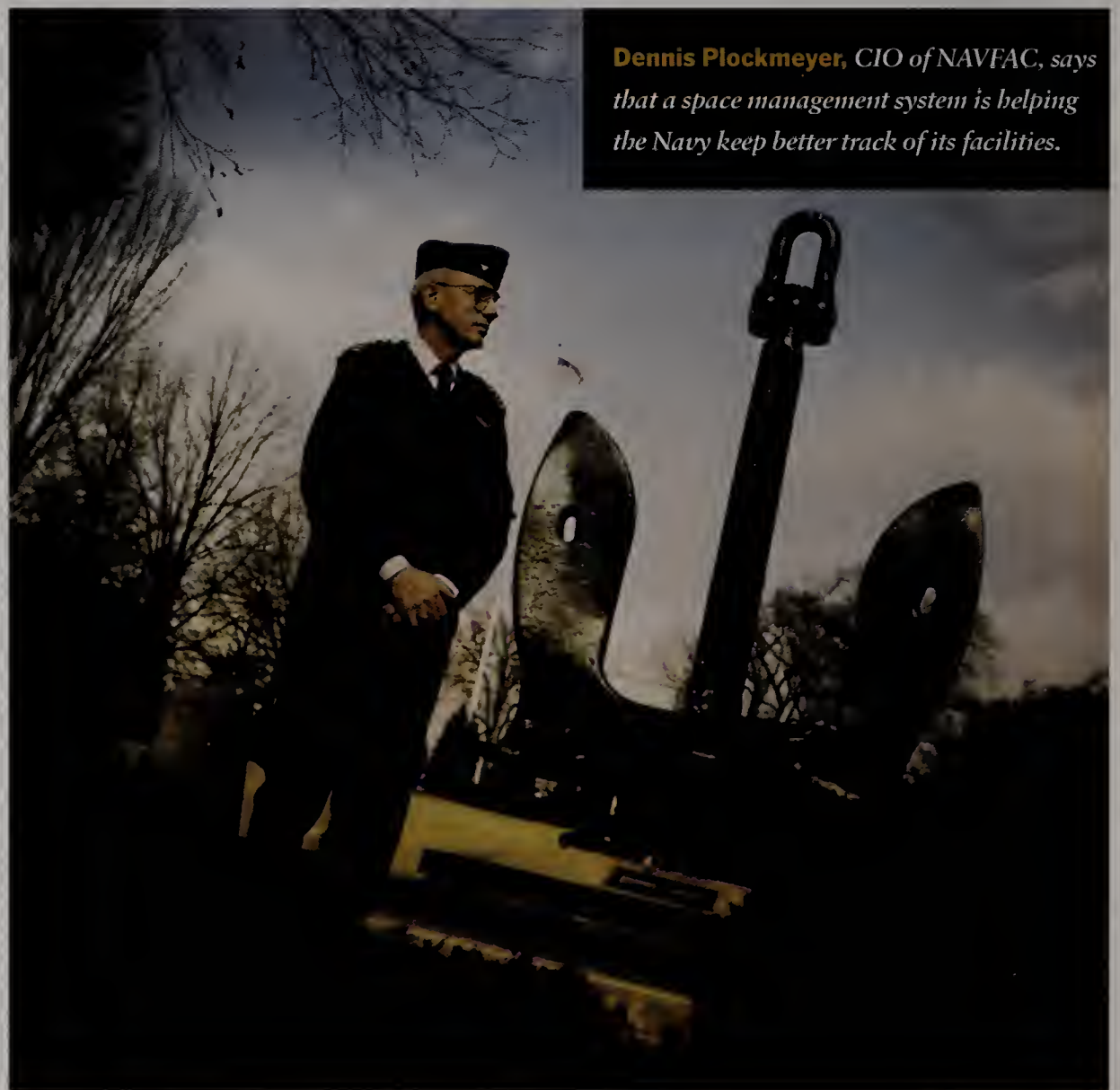
TRACKING BULKY GROUND SUPPORT EQUIPMENT is also a problem for the airline industry. About a year ago, officials at United Air

Lines decided the time had come to replace a 15-year-old mainframe-based data maintenance tracking system with one called FleetAnywhere from Peregrine Systems, an infrastructure resource management company based in San Diego. The software system was installed at four United hubs: San Francisco, Baltimore, Washington Dulles International Airport in Fairfax, Va., and Ronald Reagan Washington National Airport in Washington, D.C., says Bob Matkovich, project manager of ground support equipment (GSE) at United.

GSE is responsible for tracking some 30,000 pieces of equipment—including bag tractors, carts, cabin service trucks, aircraft push tractors, ground power units, food and fuel trucks, de-icers—“everything

that rolls,” says Matkovich.

The new asset management system is helping GSE better manage certain safety projects systemwide and “make the best purchasing decisions relative to the type of fleets we’d buy as replacements,” Matkovich says. The software tracks the total maintenance cost and overall history of each unit, as well as warranties on newer vehicles. For example, Matkovich says United repairs a lot of vehicles internally that are under warranty, and “we expect to be paid for that by the vendor.” As equipment is purchased, it is given an “electronic birth record” and all units are tagged with an identifier—an alphanumeric code based on the vehicle type. This code is then used by the system to keep track of the item.



Dennis Plockmeyer, CIO of NAVFAC, says that a space management system is helping the Navy keep better track of its facilities.

PHOTO BY CHRIS HARTLOVE



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Although Matkovich says they haven't determined the ROI from using the product so far, he estimates conservatively that it will save the airline \$1.5 million a year in warranty recovery costs. The system is also expected to produce softer savings over the long term by identifying the units that are most efficient in terms of reliability, thereby allowing the company to make smarter purchasing decisions as equipment needs to be replaced, he says. With those kinds of benefits, Matkovich says, using the tool is a no-brainer.

"The life cycle cost is what we look at, and that's why this type of tool is critical," says Matkovich.

SPACE CONSIDERATIONS

AT SOME COMPANIES AND ORGANIZATIONS, IT'S not just equipment that needs tracking. Space can be one of an organization's most important (and expensive) assets. At the Navy, keeping track of the facilities of this branch of the military is no small task. The Navy Facilities Engineering Command (NAVFAC) is charged with the management of planning, design, construction and technical support of some 200,000 facilities around the world, with an annual volume of \$5 billion in contracts, says Capt. Dennis Plockmeyer, CIO of NAVFAC in Washington, D.C. Plockmeyer says that the Navy recently decided that the answer to its facilities management dilemma was a "space management tool"—a system that is currently being implemented.

The facilities' inventory is kept on a mainframe, but the challenge has been keeping the information current, and the present system doesn't allow for inputting much detail, says Plockmeyer. And the old monitoring system is decidedly low-tech. "The current methodology is to keep track of tenants or occupants in a building using something as primitive as colored pencils to differentiate between organizational divisions," he says. "[Now,] we're trying to put a tool in the hands of a maintenance worker or facilities planner that helps him not only do his job but maintain information in our legacy database to keep it current. One of the things that can happen is

Going, Going, Gone

Companies are turning to online auctions to dispose of unwanted equipment

Disposal of assets was high on the priority list for officials at **Monro Muffler/Brake** after they acquired a competitor, **Speedy Muffler King's** U.S. operations. With the new company came a leased phone system that carried a costly maintenance contract, says Steve Andrews, facilities coordinator at the national muffler and brake company, based in Rochester, N.Y., which posted \$240 million in gross sales last year. By contrast, **Monro Muffler's** locations were using a much less sophisticated phone system that could be replaced simply by running over to a K-mart, Andrews says.

"So we made the decision we'd buy them out at the end of the lease and remove the phone systems," he says. "Now the problem is, we have 150-plus of these phone systems, some in less than perfect condition, and what do we do with them?" With no telecom staff and no time to research a practical solution, last summer Andrews turned to **Gizmo.com**, an online auction site that helped Fortune 2000 companies deal with the asset disposition process. **Gizmo.com** has since ceased operations.

"It was such a big project, and if I were to go online and list every phone system [for sale] it would have taken several weeks," says Andrews. **Gizmo.com** conducted an online auction for the muffler company and was able to sell the systems at a higher rate than Andrews says he would have gotten from a wholesaler—if he could have found someone to take them all.

The process has worked so seamlessly that when **Monro** upgrades some IT equipment in the next year, Andrews says he would recommend again using an online auction site to sell off any excess hardware. That sure beats the idea of throwing computers in a closet to gather dust.

—E. Shein



Steve Andrews,
facilities coordinator at
Monro Muffler/Brake,
used an online auction
site to sell excess phones.

PHOTO BY FORREST MCMULLIN

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you put an addition on a building or demolish it and not have current information.”

Plockmeyer says that the new system will detail how a facility is being used, whether it is occupied, for what purpose, and who is the tenant (what command or organization).

The tool had to complement the existing legacy system, which gives NAVFAC details on the condition the assets are in and when maintenance is required. NAVFAC chose Facilities Information Systems (FIS) of Camarillo, Calif., which met the criteria that it be able to integrate and synchronize with the legacy system and a maintenance management system, as well as the requirements that it be Oracle-based and Web-based, he says. The tool is undergoing testing at a Navy complex in Washington, D.C.

FIS is being used in an ASP model, but with a twist: The application is internal to the Navy, and they host it for the building owner inside the Navy, he says. So far, the system has streamlined information that NAVFAC was previously unable to capture manually. The system is also scalable, Plockmeyer says, so that it will grow as the organization's usage needs grow.

The equipment is tagged with a bar code and the information is scanned into the FIS system. In some cases, with a browser, users can click on an icon to pull up a floor plan of the building and then drill down to do a query on the equipment in that space.

Plockmeyer says the automation of space management is new territory for the Navy, but an essential one, given the multiple levels of asset classifications they must track for land, facilities, minor property and office furniture. Presently, NAVFAC is working on expanding the capabilities of FIS to include minor property (such as calculators and computers) into the system. “If you want to move me and want to know what's in the space, you only have to go to one source,” he says. “You can more effectively manage the space.”

Eventually, Plockmeyer hopes FIS will enable his group to determine whether a facility is being optimally used, if there are

Asset Management Tool Vendors

Facilities Information Systems,
Camarillo, Calif. www.fisinc.com

Isogon Corp., Ambler, Pa.
www.isogon.com

iVita Corp., Houston
www.ivita.com

Peregrine Systems, San Diego
www.peregrine.com

Tangram Enterprise Systems Inc.
www.tangram.com

Web-based auction site for asset disposal:
www.techsmart.com

any vacancies in buildings and whether there are efficiencies to be gained by reconfiguring the space or consolidating organizations—without having to physically go from room to room with a tape measure.

FUTURE ASSETS

But for most companies and organizations, utilizing asset management technology outside of IT still remains an elusive concept. At Ford Motor Co., the focus is on monitoring what software is running on a particular machine, says Bruce Miller, the global software planner in the Computer and Network Services Department for the automaker. However, Miller says he can definitely see the benefits of using the tool outside of its data center. “It's useful because you're tracking where products are and eliminating products that are no longer needed,” he says. Recently, someone he knows in another department needed some RS/6000s IT no longer had any use for, so he was able to transfer them over—but the exchange was informal. “If we'd had an automated system of what assets were free” this type of equipment deployment would be easier, Miller says.

Likewise, George Cunningham, a consultant with Plano, Texas-based Electronic Data Systems (EDS), who is acting as asset manager for an automotive supplier based in Detroit, says that asset management tools may eventually be used in such areas as manufacturing to better organize historical data. At the automotive company where he is acting as asset manager, Cunningham says they are currently using a server-based system to track what software is installed on more than 2,000 clients. But it may not stay just in IT for long.

“We're getting lots of interest from other departments in the company because of the historical basis we can report on and the quality of the reports coming out, and some of the information that was never available before,” says Cunningham. He thinks the tool may eventually be used in the company's manufacturing area, since the company's focus is on automation, a single point of data entry and the ability to get information whenever someone needs it.

As for what the future holds for asset management technology, Carl Greiner, a vice president and director at Meta Group, based in Stamford, Conn., sees greater synergies between IT and the financial department starting to occur because of the mutual benefits the two roles can bring to each other. “There are knowledge transfers taking place, as well as tool transfers, because the CIO realizes he needs the CFO in IT, and vice versa,” he says. The CFO organization gains by having better financial controls within IT, and IT gains brownie points whenever it shares the wealth, so to speak, on tools that provide information to create efficiencies and cost-savings on all types of equipment. “Some of the tools can fit within the overall structures of the corporation in general, to track very high-priced equipment—it's new automation for asset tracking,” says Greiner. Most important, it protects divisions outside of IT from having to reinvent the wheel. Now that's an asset. **CIO**

Freelance writer and editor Esther Shein is based in Framingham, Mass.

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It's a Bad, Bad, Bad, Bad World

New security services and tools try to intercept online villains

BY KAREN D. SCHWARTZ

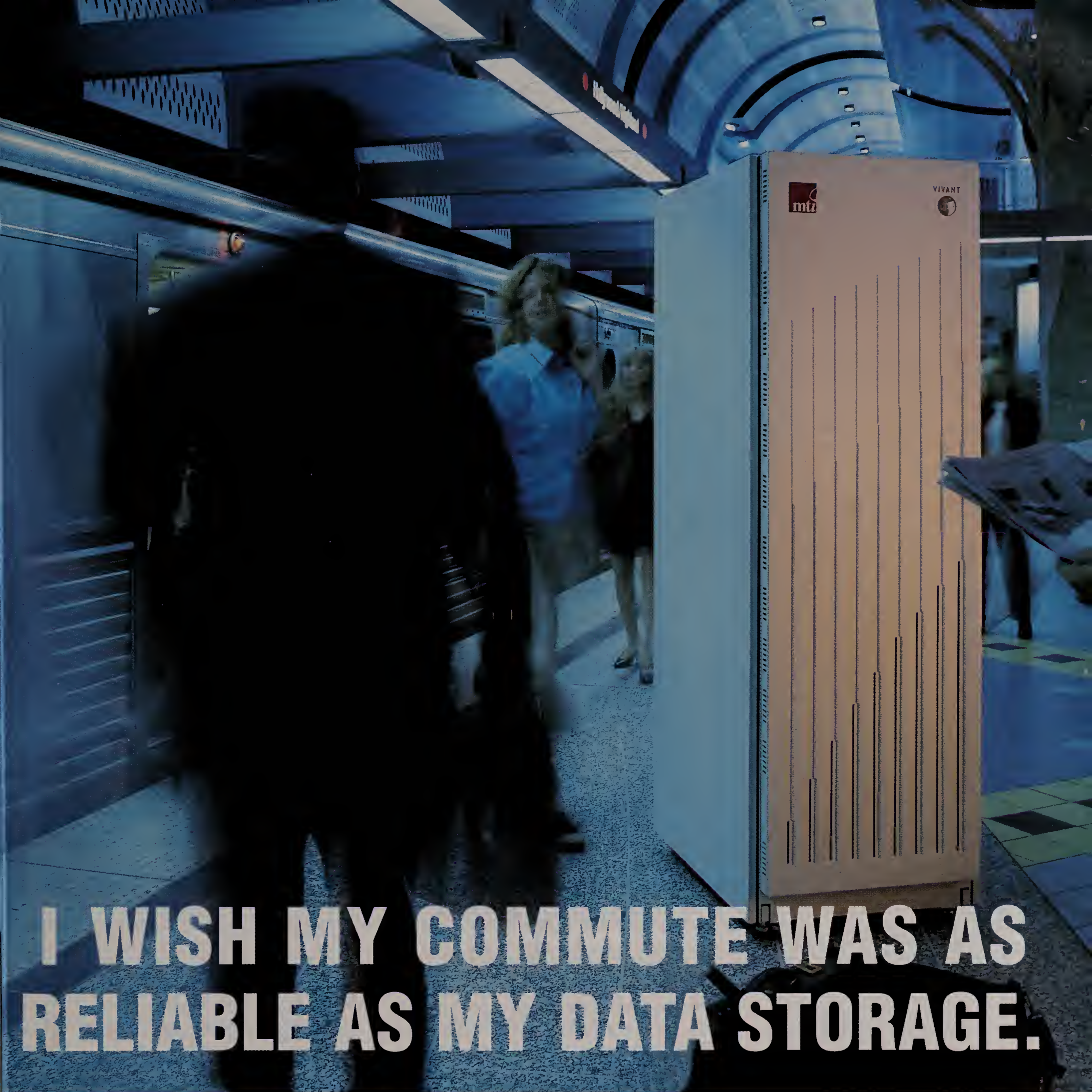
Edited by Christopher Lindquist. Send your thoughts and ideas for future columns to et@cio.com.

EDDIE SCHWARTZ likes to be proactive. As the former chief security information officer for Nationwide Insurance Cos. in Columbus, Ohio, Schwartz spent his days investigating security issues and researching new products that could

help the company's executives rest more easily.

Security managers and executives at other companies around the globe are thinking more like Schwartz, who is now the senior vice president of operations for Waltham, Mass.-based sys-

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tem security vendor Guardent, every day. And with security on everyone's mind, vendors are lining up with new tools for keeping invaders at bay. From intrusion detection tools to XML-based security options, the choices increase—and become more sophisticated—each year. Boston-based consultancy Yankee Group predicts the market for network and computer security to reach more than \$10 billion by 2003, up from \$2.3 billion in 1998.

For a global company like Nationwide, the most important aspect of security is finding a way to lock down its network

to its customers so that they can take immediate action. To customize the service, LogiKeep requires that clients fill out templates that describe the operating systems, hardware, applications, firewalls and other technology employed in the company's networks.

Before implementing the LogiKeep product, Nationwide "might not have known something was wrong until somebody started complaining," Schwartz notes. "Now the company can eliminate a lot of problems before they happen because the information is provided in a

With security on everyone's mind, vendors are lining up with new tools for keeping invaders at bay.

perimeter. The company's complicated and far-reaching array of wide area networks, extranets and servers—not to mention its 50,000 employees—helped create an environment vulnerable to visits from unauthorized users, viruses and malicious attacks.

"We used to assume we were like a castle where you could draw a big moat around [the network] and only lower the drawbridge when you wanted the good guys to come in," Schwartz says. But today's reality—which includes Internet businesses and extranet B2B relationships—forced Nationwide to provide access to systems that were previously hidden behind walls.

To deal with potential new chinks in the network armor, last year Schwartz chose LogiKeep Intelligence Alert, a tool that warns companies about security threats before they become dire. The service, from Dublin, Ohio-based LogiKeep (which was recently purchased by another vendor, Parsippany, N.J.-based Vigilix), scours a variety of websites to identify potential threats, such as viruses and software security holes, as quickly as possible. It then disseminates that information

timely manner and has been adequately analyzed and thought through."

Nationwide's adoption of LogiKeep is just the kind of proactive thinking more companies should pursue, says Matthew Kovar, director of security solutions and services for e-networks and broadband access at The Yankee Group. Tools like those from LogiKeep and competitors ParaProtect Services in Centreville, Va., and iDefense in Fairfax, Va., are at the forefront of the proactive security trend, he says.

Out of Your Control

LogiKeep's managed services products touch only parts of a company's overall security system, but other vendors are taking the concept to the extreme. Today's dearth of trained security personnel has led some vendors, such as Guardent and Santa Clara, Calif.-based MyCIO.com (now called McAfee ASaP after recently being reabsorbed by its parent company, Network Associates), to offer truly outsourced managed security services—from monitoring to virus protection to firewalls.

DPR Construction, a Redwood City, Calif.-based construction company with

new products

Find It Anywhere

Main Course Technologies has released a product intended to let companies track and locate people, vehicles and other mobile assets.

PortaTrack combines global positioning system and wireless networking technologies with a Web-based interface, and displays a map of resources on PCs or other Web-enabled devices, such as handheld computers. The product displays information—including city, street, cross-street, speed and direction—in both graphic and text-based formats. The product can be configured to work with customers' existing hardware or with newly purchased systems. Pricing begins at \$500 per unit plus a monthly service fee of \$19.90. For more information, visit www.mctworldwide.com or call 213 438-0352.

Instant Access

Groups and remote offices in need of quick Internet access may be interested in **Rebel.com's** latest versions of **NetWinder**, an Internet access device. The NetWinder 3100 includes security features, Web hosting, Internet access, e-mail services and file sharing. Each unit features three 100Base-T Ethernet ports, an integrated Web cache, a firewall, support for virtual private network remote access connections and an auto-update feature that allows for seamless software



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1,500 employees in 18 locations throughout the country, has successfully deployed MyCIO VirusScan to more than 1,500 workstations.

Before turning to VirusScan, DPR was always behind the curve regarding virus protection, Network Manager Lee Rocklage says. When the "I Love You" virus hit last year, for example, only 300 of the company's 1,200 workstations were up to date with the latest virus definitions. Now all workstations are protected; any-

pany's \$2 billion in daily transactions.

The products are intended to protect against a comprehensive list of security breaches, and they send an alarm when any are detected. They also allow security analysts to audit network traffic so that they can reconstruct it at the time the breach occurs, helping identify exactly what events happened during the attack and providing clues about ways to prevent similar events.

Like Carter, protecting large sums of money is something Chris Smith knows

If someone passing by an employee's PC sees the user ID and password, he has unlocked the key to the digital certificate.

time employees access the network or the company's intranet, they receive the most recent protection for their machines.

In addition to giving Rocklage peace of mind, outsourcing the security headache to someone else allows him to focus on other things. "It's an unbelievable relief to get some of this off of our plates because we don't want to spend our days fighting viruses when we've got so much else to do," he says. Rocklage notes that with this workload easing in mind, DPR has now adopted other MyCIO services as well.

Intruder Alert!

All-in-one security services aren't the only newcomers to the security scene. Intrusion-detection software—which seeks to identify when unauthorized users access a network by pinpointing and reporting suspicious activity, such as repeated attempts to enter incorrect passwords and denial-of-service attacks—has also become a hot topic.

Everett Carter, director of security at BankServ, a provider of Internet payment services based in San Francisco, uses a combination of the ICEpac Security Suite from San Mateo, Calif.-based Network ICE and Network Flight Recorder from NFR Security in Rockville, Md., to protect the com-

a lot about. As vice president of computer information systems at EasCorp (Eastern Corporate Federal Credit Union) of Woburn, Mass., Smith is charged with ensuring that the organization, with 100 employees and more than 250 credit union customers, is fully secure.

For EasCorp, the most important part of the security puzzle is authentication. To solve the problem, at least in part, EasCorp uses RSA Security's Keon PKI Certificate Authority software, which allows the company to act as its own certificate authority and issue certificates for customers.

That's fine as far as it goes, but Smith says it's simply not adequate when dealing with such large sums of money. If someone passing by an employee's PC sees the user ID and password, for example, he has unlocked the key to the digital certificate. "That's not strong enough to perform a \$1 million wire transfer," Smith notes.

To address the problem, EasCorp has just purchased SafeWord, a handheld token-based security device from Secure Computing. EasCorp plans to use the device as a multifactor authentication system. When paired with the digital certificate, the physical token device will generate a random number, which the user

new products

upgrades. The NetWinder 3300 includes all the same features and functions as an 802.11b wireless access point. Pricing for the products begins at \$1,795 for the 3100 and \$2,295 for the 3300. For more information, visit www.rebel.com or call 613 788-6000.

Sync It

Users with multiple information management products—such as desktop PCs, PDAs and cell phones—have a new tool for keeping information current on every platform. **Synchrologic's ReadySyncGo** synchronizes contact and calendar information, as well as providing an easy way to create and sync trips and appointments. The product can also automatically retrieve relevant Web information such as directions, maps and weather forecasts. It works with Microsoft Outlook 97, 98 and 2000, Palm handhelds running the PalmOS 3.0 and higher and many Web-enabled cell phones. Users can also retrieve information via the Web. The service is free for individuals. Enterprise pricing begins at \$14.95 per month per user. For more information, visit www.readysyncgo.com or call 770 754-5600.

A P P L I C A T I O N F O R M

ENTERPRISE VALUE AWARDS 2002

*The Award
for Innovative
IT Solutions*

Presented by CIO Magazine



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GENUITY

A P P L I C A T I O N D E A D L I N E J U N E 1 5 , 2 0 0 1

CIO MAGAZINE'S

ENTERPRISE

Honoring Business Achievement Through

VALUE

The Innovative Use Of Information Technology

AWARDSSM

CRITERIA

The CIO Enterprise Value Awards honor technology-enabled business achievement. Winners will be chosen by a panel of independent judges from entrants who submit completed application forms to *CIO* Magazine by June 15, 2001.

Entries will be judged on the value of the achievement resulting from the technology investment and the degree to which it serves the organization's mission. Judges are looking for initiatives that have had a broad and significant impact on the enterprise as a whole.

DEFINING VALUE

We invite applicants to consider the broadest possible spectrum of enterprise value. The following list of IT-enabled benefits is not inclusive but rather is intended to help guide applicants' thinking:

Strategic Impact

- ▶ Penetration of new markets
- ▶ Transformation of the terms of competition within the market
- ▶ Increased market share

Customer Impact

- ▶ Customers have more choices of products and services
- ▶ Customers receive better products and services at a lower cost
- ▶ Transaction process is more rewarding/less time-consuming

Financial Impact

- ▶ Lower costs due to streamlined operations
- ▶ Increased profits
- ▶ Increased operational effectiveness

Operational Impact

- ▶ Improvements to the industry value chain
- ▶ Increased margins

Social Impact

- ▶ Education
- ▶ Health
- ▶ Safety
- ▶ Environment

SELECTION PROCESS

Finalists are selected by a screening panel of *CIO* editors and the *CIO* Magazine Enterprise Value Awards Review Board. Each finalist will be subject to an in-depth analysis of the nominated system performed by *CIO* or its agents. This analysis, which may require a site visit from a member of our Review Board, will be based on interviews with sponsoring executives and system users and will be designed to substantiate all claimed benefits. Site visits will take place in July and August. The Review Board will present its findings to a blue-ribbon judging panel of leading IT practitioners for final judging in late September 2001.

IMPORTANT DATES

Deadline: Applications must be received by June 15, 2001.

Notification: Winners will be notified in October 2001.

Presentation: Awards ceremony takes place January 29, 2002, at the CIO Enterprise Value Retreat. Winners will be profiled in the February 1, 2002 issue of *CIO* Magazine.

ENTRY GUIDELINES

- ▶ The system must have been operational prior to July 1, 1999 (yes, we really mean '99!).
- ▶ Entrants must agree to be featured, along with their systems and organizations, in a *CIO* article.
- ▶ Entries must be complete (see checklist at end of application).
- ▶ All entries must be computer-generated or typed; no hand-written entries will be accepted.
- ▶ A copy of the entry should be sent via e-mail or on diskette as an MS Word, PDF or Adobe Acrobat file. An electronic version of this application can be downloaded from www.cio.com/eva.
- ▶ Only one entry per company will be considered.
- ▶ Entries must be made jointly by the CIO/IS executive sponsor AND by the business sponsor for whom the system delivers value.
- ▶ IT vendors, public relations and advertising companies, consultants and other third parties may NOT apply on behalf of another company. They are encouraged to forward this application to the "owner" of the system or to contact *CIO* Magazine to recommend that an application form be sent to the client.

Presented by CIO Magazine



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As a technology or business executive who has built an IT system that delivers strategic value to your organization, you deserve recognition. The CIO Enterprise Value Award will bring you, your company and your IT organization the industry prestige you deserve.

The Ultimate Accolade

If your innovative solution resulted in broad and significant impact for your organization, please complete this application form and return it to us no later than June 15, 2001. *CIO Magazine* will feature profiles of the winning organizations and the executives who have proven the positive and sustained impact of technology on enterprise value.

of Business Success

In January 2002, *CIO Magazine* and Genuity will host a special awards ceremony honoring the CIO Enterprise Value Award winners at the annual CIO Enterprise Value Retreat.

For more information, visit our website at www.cio.com/eva or contact Cristina Sousa at 508 935-4630 or via e-mail at csousa@cio.com.



CIO Enterprise Value Awards

T I M E L I N E

Applications Due:

June 15, 2001

Winners Notified:

October 2001

Awards Ceremony:

January 29, 2002

at the CIO Enterprise Value
Retreat, Loews Ventana
Canyon Resort, Tucson, Ariz.

1 COMPANY/BUSINESS UNIT

Name of parent company

City, State where headquarters are located

Publicly or privately held?

Annual revenues

Industry

Name of business unit or organization

City, State where located

Number of employees at business unit

URL

2 ENTRANTS

A. Name of entering IS executive/system sponsor

Title

Name of division, department or unit

Address

City

State Zip
() ()

Telephone Fax

E-mail

B. Name of entering business-unit executive/sponsor

Title

Name of division, department or unit

Address

City

State Zip
() ()

Telephone Fax

E-mail

3 SUPPORTERS

Please list four people (other than the entrants) who are willing to be interviewed with regard to the system, its development, its use and the value returned. At least one should be a member of the technology team that developed the system and should have played a significant role. At least one should be a primary user from the sponsoring business unit. The other two may be from either organization or may represent suppliers, customers or others intimately familiar with the system.

A. Name

Title

() ()

Telephone Fax

E-mail

Reason for inclusion

B. Name

Title

() ()

Telephone Fax

E-mail

Reason for inclusion

C. Name

Title

() ()

Telephone Fax

E-mail

Reason for inclusion

D. Name

Title

() ()

Telephone Fax

E-mail

Reason for inclusion

For more detailed information on the type of data the judges would like to see, including a model application, please visit our website at www.cio.com/eva.

4 THE NOMINATED ORGANIZATION

In one paragraph, describe your organization and what it does. Please include your most recent annual report or 10k; a corporate brochure; and any other relevant material that will help describe your company and its standing within its industry.

5 THE NOMINATED SYSTEM

Tell us about the nominated system and demonstrate its importance to the organization by completing the following sections. Please limit your material to one or two pages.

System Description: In one sentence or less, describe the system or IT initiative you are nominating (e.g., order fulfillment or sales-automation system; global intranet).

Cost of Investment: Include all up-front development costs and annual maintenance charges.

Date Deployed: Please indicate when the system was fully in production. If all users were not online by **July 1, 1999**, please detail what went live when.

Technical Profile: Briefly describe the technology of the nominated system, including its architecture; hardware, software and development tools used; and networking/communications hardware, software and services. Please include the names of all major vendors and products.

Technical Excellence: Describe the degree of overall technical innovation of the solution (does it employ cutting-edge technology?).

Industry Standing: Describe the system's uniqueness within your industry (is this an industry first or second, or is this a common solution?). Please be as specific as possible and include supporting data.

This is the most important part of the application!

6 BUSINESS VALUE

Describe the primary objectives of and value derived from the IT investment. (See "Defining Value" on Page 1.)

List and prioritize the three most important contributions the system has made to the organization, its industry or the overall community it serves. Make sure to describe what the value is, how it was achieved and how it relates to the mission of the organization. Include details and supporting data (e.g., detailed ROI for financial value, proof of increased market share, proof of customer loyalty) whenever possible. Please limit this section to a maximum of three pages.

7 TRUTH OF INFORMATION RELEASE

The following release must be signed by both nominating executives if the application is to be considered. Unsigned releases will invalidate the entry.

I hereby state that the information provided is true and complete to the best of my knowledge and belief.

I authorize the release and use of, in connection with the CIO Magazine Enterprise Value Awards program, any and all materials furnished by me or others at the company contacted for this judg-

ing. I understand that information submitted on this application or subsequently gathered during the evaluation and judging process may be used in articles or any other type of publicity relating to the CIO Magazine Enterprise Value Awards program.

I also authorize the release and use of my name, my company's name and my likeness, including but not limited to any photographs and any recording of my voice or image that may be taken of me for CIO Magazine. I agree that no compensation shall be due to me or my company for such usage.

I recognize that failure to meet these conditions or to provide sufficient material that can be published can cause the application to be rejected at any point in the process at the sole discretion of CIO Magazine.

1. Signature of nominating IS executive Date

2. Signature of nominating business executive Date

If you are selected as an award recipient, would you be willing to participate in a small group session at the Enterprise Value Retreat or appear on stage to discuss how you accomplished your goals?

Yes ☐ No ☐

Would you be willing to participate in a CIO Magazine/Harvard Business School case study?

Yes ☐ No ☐

8 OTHER EDITORIAL OPPORTUNITIES

If you are not selected as an award recipient, are you willing to be contacted for inclusion in other articles in CIO Magazine?

Yes ☐ No ☐

How did you obtain this application form?

- ☐ Saw the ad in CIO Magazine
- ☐ Received a mailing from CIO Magazine
- ☐ Came across it on the CIO.com website
- ☐ Heard about it at last year's Enterprise Value Retreat
- ☐ A consultant or vendor recommended we apply
- ☐ Heard about this award program from an IT colleague
- ☐ Other (please identify) _____

CHECKLIST

Have you filled out...?

- ☐ Company/Business Unit, Entrants and Supporters Information

Have you included...?

- ☐ Brief description of your organization
- ☐ Annual report or 10k and corporate brochure

Have you included on separate pages...?

- ☐ Nominated System
- ☐ Business Value

Have both entrants signed and dated...?

- ☐ Truth of Information/Release

Have you checked off...?

- ☐ Other Editorial Opportunities
- ☐ How you learned about the CIO Enterprise Value Awards program

DEADLINE: JUNE 15, 2001

Mail to: CIO Enterprise Value Awards • c/o Cristina Sousa • CIO Magazine
492 Old Connecticut Path • P.O. Box 9208 • Framingham, MA 01701-9208
or e-mail to csousa@cio.com

Visit our website at www.cio.com/eva

PREVIOUS WINNERS

APCOA Inc. 1995	New York City Department of Finance 1998
AT&T Universal Card Services Corp. 1994	New York City Transit Authority 1993
Bell Atlantic Corp. 1997	Office Depot Inc. 2001
Black & Veatch 1998	PCs Compleat Inc. 1995
Brigham & Women's Hospital 1996	The Perrier Group of America Inc. 1993
Capital One Financial Corp. 1999	Pfizer Inc. 2000
Caterpillar Inc. 1995	PPG Industries Inc. 1999
Charles Schwab & Co. 2000	Procter & Gamble 1998
The Chase Manhattan Corp. 1997	Rockwell Space Systems Division (SSD) 1996
Chicago Bureau of Parking 1994	The SABRE Group 1999
Commonwealth of Massachusetts 1995	SBC Communications Inc. 1999
Complete Health Services Inc. 1994	Schlumberger Ltd. 1997
Dell Computer Corp. 2000	South Florida Water Management District 1994
Fidelity Investments 1997	State Street Global Advisors 1998
Gensym Corp. 1996	SynOptics Communications Inc. (now Bay Networks Inc.) 1994
Harrah's Entertainment Inc. 2001	Tech Data Corp. 1998
Household Financial Corp. 2000	Telogy Inc. 1996
Hyatt Hotels & Resorts 1995	Texas Instruments 1993
Kmart Corp. 1995	Travelers Managed Care and Employee Benefits Operations 1993
Lone Star Gas Co. 1993	Tufts University 2001
Los Angeles County Department of Public Social Services 1994	United HealthCare Corp. 1996
McDonnell Douglas Helicopter Systems 1996	U.S. Army Pacific Regional Program Office 2000
MacGregor Medical Association 1997	U.S. Environmental Protection Agency 1998
Medical Center of Delaware 1993	
The MITRE Corp. 1999	

CIO ENTERPRISE VALUE AWARDS HONORING BUSINESS ACHIEVEMENT THROUGH THE INNOVATIVE USE OF INFORMATION TECHNOLOGY

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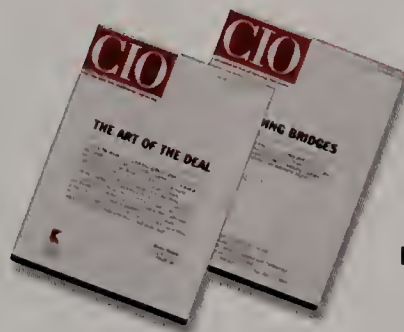
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will key in during the process of releasing the wire transfer for processing. By combining digital certificates with multifactor authentication systems such as a token-based system, a smart card or a biometric-based system, "you end up with much stronger certainty that the person is who they say they are," Smith says.

Future Uncertainty

The future of security is both bright and dark—bright for the myriad vendors providing new ways to keep miscreants with modems at bay and dark for the CIOs who feel compelled to keep buying the resulting products. But there is some hope. All-in-one security services can provide companies with 24/7 outsource system protection that's constantly taking advantage of the latest products. And companies that would rather retain more control of their security systems while still simplifying the process, new all-in-one security systems (such as those from Zone Labs and Okena) combine firewall, antivirus, intrusion detection and other security necessities into a single product that's easier to manage than integrated multiple tools.

Even the ubiquitous XML may get in on the security act. Nationwide is investigating the opportunity to use XML to deposit better information from its Web-based knowledge into a central security site and then act on it in a more timely manner. Schwartz says that although the concept is brand new, he talked to some vendors, including Guardent, about how they might develop such products.

"We looked closely at how we can use XML to do things like data classification. You've got websites for the general public and sites you want to keep more confidential containing your customers' private information, and XML could be a great way to deal with that," he says. ■

Karen D. Schwartz is a freelance writer specializing in business and technology. Based in the Washington, D.C., area, she can be reached at karen.schwartz@bigfoot.com.

PREDICTIONS

wireless Web

Mobile Internet Access Exploding

BY NOW YOU'VE undoubtedly heard the news: Portable devices such as phones, pagers and computers with mobile modems will quickly surpass desktop PCs as the Internet access devices of choice. "Mobile Internet Access Devices: Surfing the Net on the Fly," a recent report by Scottsdale, Ariz.-based Cahners In-Stat Group, confirms the claim, stating that more than 1 billion Web-ready wireless phones alone will ship every year as of 2004. But In-Stat Senior Mobile Commerce Analyst Ken Hyers says the numbers need to be examined in context.

"These are not subscriber numbers being projected," Hyers says. "These are only units shipped." Hyers notes that while billions of the devices may be on the streets, the actual number of people who will be using them for Internet access is not easy to determine. Thus, he cautions, it doesn't necessarily mean that people will be giving up their PCs in favor of the devices.

Hyers adds that while the sheer number of devices and upcoming higher-speed access technologies guarantee that more people will be going online with the devices, those users are unlikely to be using them for the same sort of activities or for the same amount of

time as they would a PC. The best screens on handheld devices will still be small, and data entry will remain a serious hurdle, even as voice recognition becomes more feasible. As a result, the devices will most likely find homes as notification devices for stock quotes, auction bids, instant messaging, shopping and the like—not true Web surfing and e-mail tools.

Those limitations, however, shouldn't stop corporations from getting an early start on mobile preparedness, Hyers says. "The strategy is information anywhere, anytime," he states, "and many [corporate] customers are going to be untethered at least part of the time."

—Christopher Lindquist



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REVISIT dispersed databases

Shattering the Glass House

*Ten years later, centralized databases still rule—
but not everywhere* BY FRED HAPGOOD

THE GREAT TRAUMA in the history of the CIO profession—what 1789 was to the French and the dissolution of the empire to the British—came in the late 1980s, when the venerable host-terminal system started to die under the massed attack of swarms of PCs.

At the time, the mainframe was the fruit of almost 20 years of polishing and tweaking. Nothing about it looked broken, at least in the opinion of many sage IS managers. The practice of centralizing data storage (let alone applications) seemed like a particularly good idea, offering as it did a single point from which the accessibility, integrity, reliability and security of corporate data could be guaranteed.

Nonetheless, the tide of PCs was clearly irresistible. It followed, or so it seemed, that enterprise data and computing tasks were fated to be dispersed throughout a population of processors. As the cracks yawned in

the walls of the ancient regime, many of us passed through the stages of loss, beginning with rage and proceeding through denial and into bargaining, often with higher levels of management. Here at CIO we skipped those early phases, which tend to be a bit dreary, and cut straight to acceptance. On Oct. 15, 1992, we declared the game over. "Once data has been disseminated to its users, there is no way to rein it back into a single central system," we said, and proceeded to lay out a vision of how IS could come to terms with the dispersed data regime inherent to the PC landscape.

The solution we favored was an architecture in which all these data stores were integrated with local procedures. These would handle relations with a central control point: compiling reports, satisfying queries, and complying with policies on indexing, security, recovery and so on. The CIO would sit at this central point, moni-



new products

Portal Security

Evidian has unveiled a centralized, directory-based security product that allows authorized users to access a variety of Web and network resources without forcing them to remember multiple user names or passwords.

PortalXpert Security lets administrators quickly add resources to the system, even if they don't control the source applications. Administrators can also hide confidential URLs while still providing access to the necessary resource. No additional software—including cookies—is required on either the Web servers or client devices. Pricing begins at \$20 per user. For more information, visit www.evidian.com or call 978 294-5712.

Content Control

NQL has recently released **ContentAnywhere**, its enterprise content management platform. Once installed, companies can use ContentAnywhere to collect information from a variety of corporate sources (intranets, databases, websites, news services and more). Users can organize and insert the information into applications such as Outlook and Web browsers, and on many platforms, including PCs, PDAs and WAP-enabled cell phones. Pricing begins at \$200,000 per server. For more information, visit www.nqli.com or call 714 338-1600.



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toring performance, defining transactions and standardizing operating processes. "Distributed technology offers a way for IS to once again exercise its managerial responsibilities for enterprise data while allowing users to retain localized operations," we said. Everybody wins.

In retrospect, we called the game far too early. If it is true that you can't fight progress, progress is often more than happy to fight itself. The rapid penetration of fast networks and the even more rapid improvements in mainframe and server performance (by some measures, more than 150-fold in the past decade) allowed centralized models to snatch the momentum

dramatic curve (some call this Gilder's Law): halving every nine months. In other words, the cost advantage of distributed over centralized IT infrastructure doubles every year. Given the huge R&D investment now being made in networking, these differences seem likely to become steadily more consequential.

Expressions of this trend include the recent finding that traffic on large networks doubles every year (this relationship was discovered by the estimable Andrew Odlyzko of AT&T Labs), the growth in the ASP and network caching sectors, and the interest in Internet computing, a catchall term that covers a long list of schemes on

It followed, or so it seemed, that enterprise data and computing tasks were fated to be dispersed throughout a population of processors.

of development back from the desktops. Shail Jain, CEO of Intelligent Information Systems, a Durham, N.C., vendor of software transformation services, was manager of Data General's database research and development group 10 years ago. At the time, he says, "I believed that distributed databases would take over the world." But in the following years not one of the dozens of database architecture projects on which he has worked has been distributed in any serious sense.

Today, however, dispersed databases are back in the spotlight, partly in consequence of several shifts in the technological background. Internet applications have added value to the traditional talking points of distributed databases—higher reliability and lower latency. Even more fundamentally, declines in processing costs, which turned into an ally of centralized systems, are no longer driving technological change. During the past few years, the cost of bandwidth has been falling along an even more

how to recapture unused resources from underused systems.

Ideas leveraging these changes usually end up requiring distributed databases at some point. Sometimes these data stores communicate with agents or middleware, but often enough they use tightly integrated data/procedure packages that come very close to the vision we laid out in our 1992 article. A good example might be the "application caching" service being offered by a Palo Alto, Calif., company called Zembu, in which applications (such as programs that generate data dynamically) are replicated and distributed to the edges of the network.

All in all, our original article still holds up, if you can manage to overlook the little detail that we published it about nine years too soon. ■

Power to the people (who cares if they don't know how to use it). Send Revisit suggestions to et@cio.com.

new products

After the Crash

Mutek Solutions has announced the release of its application error tracing solution, the **Black Box Flight Recorder**. The device resides on client or server systems, accessible via the network by support or system administrators. It monitors online application activity in the background. If it detects a situation that could lead to an error (error conditions are preset by an administrator), it sends alerts to administrators requesting attention. Should an application failure occur, administrators can then use the box to play back the events that led to the problem. The box can record activity at the user, system and code levels with minimal effect on system performance. Boxes are available for both client and server machines and can be monitored and managed locally or remotely via a Web interface. Pricing for the boxes is based on the customer's configuration. For more information, visit www.mutek.com.

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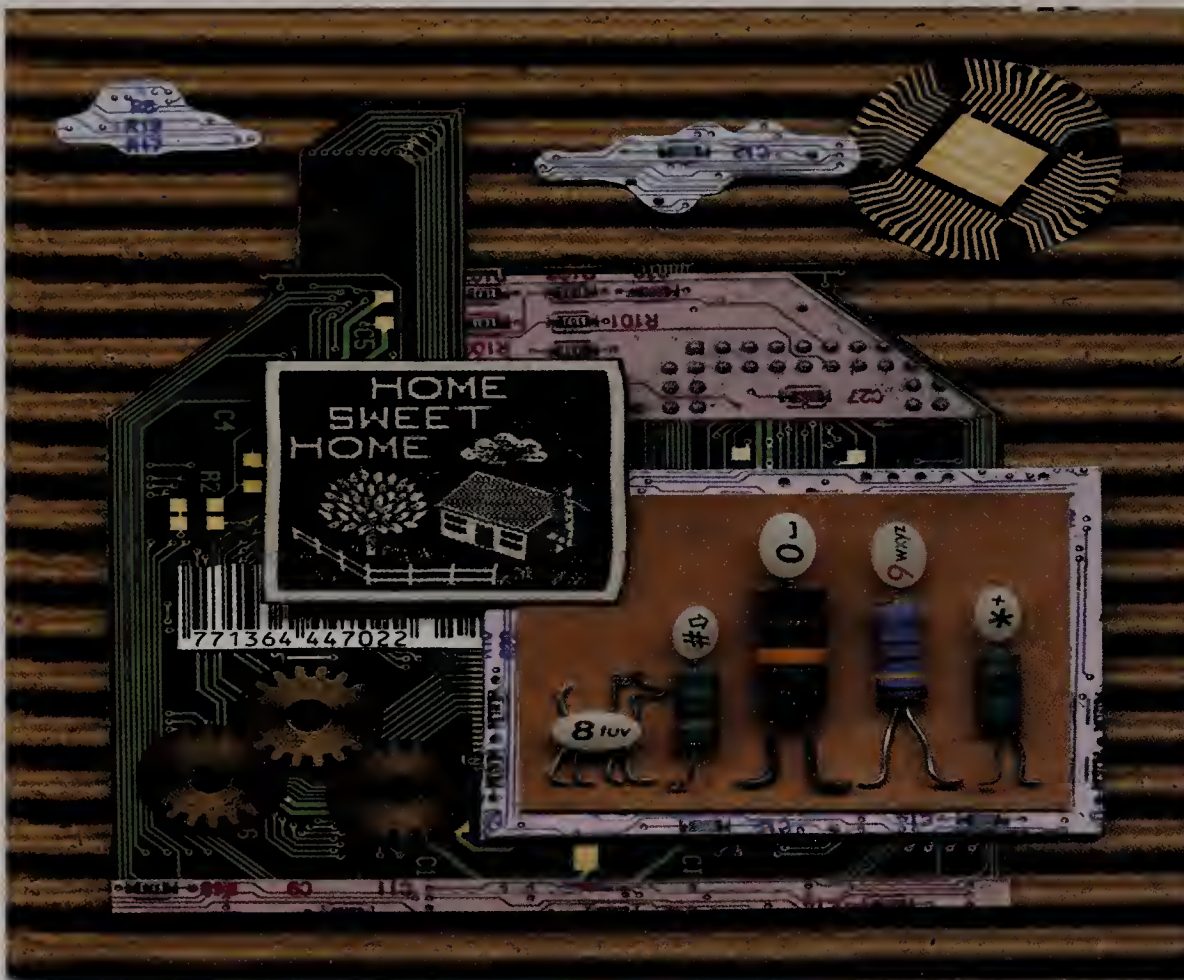
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Be It Ever So Broadband

A HOUSE IS NOT A HOME unless it's loaded to the rafters with an array of broadband telecommunications gadgetry. At least that's the vision of a group of Georgia Tech researchers.

The Atlanta-based school's Georgia Center for Advanced Telecommunications Technology (GCATT) has joined forces with several tech industry powerhouses—including Intel, Mitsubishi and Motorola—to build a home that's literally bulging with cameras, sensors, computers and cable. One gets the feeling that if the pipes should ever burst inside the little green house on the corner of 10th and Center streets, bits rather

than water would spill onto the floors.

The Broadband Institute Residential Laboratory (the home's official name) is designed to serve as a test bed for emerging residential technologies. Georgia Tech faculty members and students prowl around the dwelling, installing and testing various projects, such as a microwave oven that includes e-mail and electronic banking services, or a trash bin with a bar code scanner that tracks pantry contents. Next year, GCATT intends to move volunteer subjects into the home on a full-time basis. "We want to find out what will work and what won't work," says Nikil Jayant,

GCATT's executive director and a professor of electrical engineering.

Creating the broadband home of the future required a substantial infrastructure investment. The home features more than 60 video cameras, 48 network outlets, an Ethernet LAN, an 11Mbps wireless network and a 2Gbps access pipe created from four DSL lines and an optical fiber link. The researchers installed the extensive hardware so that the house can accommodate virtually any technology they can dream up. As a result, every wall has at least six network jacks, and there's enough available bandwidth to support virtually any type of data stream, including multiple channels of full-screen digital video. And if someone loses something, a radio-locating system can pinpoint any tagged object to within 10 feet. "We plan to use scientific rigor, rather than anecdotal experiences, to provide the base for future lifestyle enhancements," says Jayant.

The house cost about \$750,000 to build, not including the computer equipment. But Jayant expects that tomorrow's wired residences will be far less expensive. "We didn't set out to build a Bill Gates-type home," he says. Jayant notes that a real home wouldn't have to include every available technology, just the ones that its owners decide to use. Seniors, for example, might want to incorporate extensive telemedicine capabilities into their residence. Homeowners with young children might choose to focus on broadband educational and entertainment resources. Other people would want to include environmental monitoring and security systems. "There won't be a home of the future," says Jayant, "simply a home of the present that utilizes available technologies to meet peoples' needs."

—John Edwards

One gets the feeling that if the pipes should ever burst inside the little green house on the corner of 10th and Center streets, bits rather than water would spill onto the floors.



Virtual Content Networks: Serving the Enterprise *cont'*

Analysts: Dirk Coburn and Susan Feldman

Key benefits of the NQL ContentAnywhere system in this regard include a consistent, ubiquitous interface from within any familiar application and the ability to serve users regardless of knowledge of technical data formats and schemas.

NQL's Network Query Language, the development framework for the ContentAnywhere system, offers application development and deployment advantages including productivity, flexibility, and extensibility. This framework does for heterogeneous web content what Structured Query Language did for relational data a generation ago. Modular architecture allows user organizations to develop a content link once that can serve multiple deployment needs, reducing costs of development and integration. Ad hoc connection of applications and content in a reasonable enterprise environment is theoretically possible but unduly complex to design and maintain (see Figure 2). A modular system rationalizes those connections into a scalable architecture (see Figure 3). Adherence to broadly accepted standards such as Simple Object Application Protocol (SOAP) allows the system to be deployed on heterogeneous computing platforms. This platform is an important step toward facilitating reliable, cost-effective extension and customization. We encourage NQL Inc. or its business partners to build additional relevant solutions on the same framework in the future.

If this isn't validation enough, go to our site to see the biggest breakthrough in enterprise productivity.

Go to
<http://contentanywhere.nqli.com>

and we'll show you how to arm your enterprise to use content anywhere, in any way, by any means.

Our remarkable new NQL ContentAnywhere™ system is an enterprise-wide content management platform that now allows the ability to easily deploy and transform information residing in any data source, including legacy systems and web sites, into any information device or popular application where it can be reconfigured in any manner, to suit any user, instantly. Now, forward thinking companies can make dramatic strides in improving enterprise productivity.

NQL ContentAnywhere™



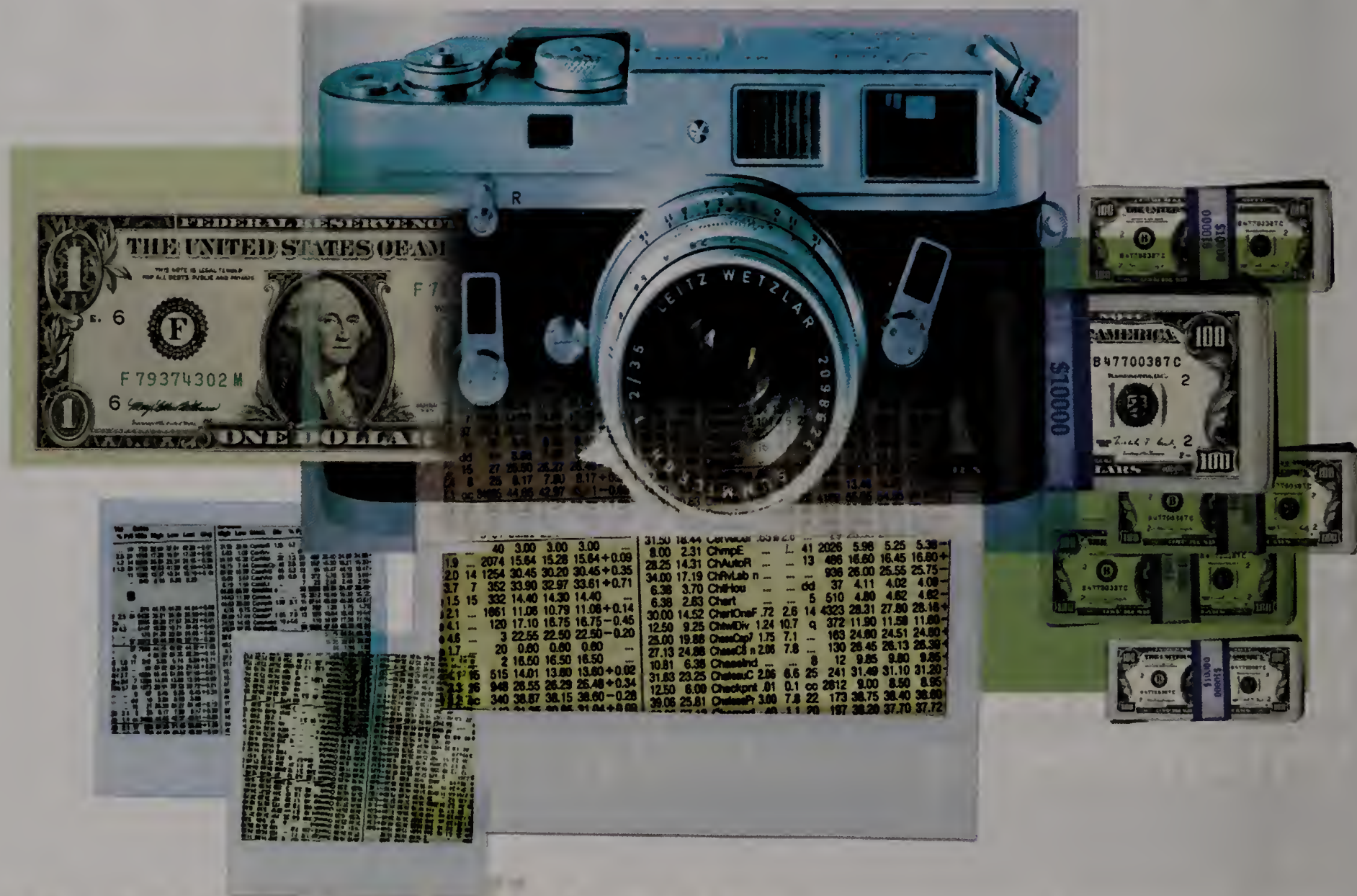
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WORK, PLAY AND OTHER STUFF

EDITED BY SARA SHAY AND LAFE LOW



A Snapshot in Time

A price-earnings ratio is accurate for an instant, but a moment doesn't tell the whole story

BY PERRY GLASSER

NICK, A RUDDY-COMPLEXIONED GENT smelling of brimstone, appears in your office and offers you \$1 million tax-free in exchange for 100 percent of your salary for life. You are 40 and earn \$100,000 each year. If you willfully cease working before your 65th birthday—alas!—you forfeit your soul. “That’s a P/E ratio of 10, Bucko. Better take it,” Nick says, and he offers to sign the contract in ichor. Since you have no clue what a P/E is, you hold off, for now.

VALUING THE DEAL

That evening, you tell your spouse what’s what. “You are a nincompoop,” the light of your life mutters and explains that you are contemplating selling your financial life for a price exactly 10 times your current earnings. In other words, you have set the ratio of your price to what you earn, your P/E ratio, at 10. “Then why would anyone buy shares at hundreds of times earnings?” you ask. “It would take centuries to

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recoup the investment.”

“Because people invest on the expectation of change, the P/E ratio is part of a financial snapshot in time,” your buttercup points out. “But when valuing any investment, a moment is not a complete story. Your salary, like a young company with expanding markets and developing products, has potential for growth. If you get salary increases, Nick will recoup his investment sooner—and then reap profits. Why, you may warrant a P/E of 25, 30 or even 50!”

THE REAL WORLD

In reality, most of us play Nick’s role. When evaluating a company, a smart investor uses P/E as one of several measures to assess whether a potential investment is expensive, reasonable or cheap. However, P/E ratios are not very useful for compar-

ing companies across industries, so running your eye down the P/E column in the paper in search of low numbers won’t guarantee finding a reasonably priced investment that’s bound to go up.

Savvy investors use the P/E as one benchmark ratio in an array of several. For example, yield—the ratio of dividend to price—is an important consideration. PEG (price/earnings/growth) is another. Some advisers believe a PEG of 1 means a company is fairly priced. So a company with a P/E of 50 growing at 50 percent per year has a PEG of 1. Less than that, PEG believers suggest, would be a buy. Significantly higher than that, call your broker—it’s time to sell. **CIO**

Perry Glasser, the managing editor of *Illuminata* Inc., can be reached at pglasser@illuminata.com.

design Lighten Up

Contemporary lighting designs can illuminate in many ways, whether they’re switched on or off **BY ELIZABETH DOUGLAS**

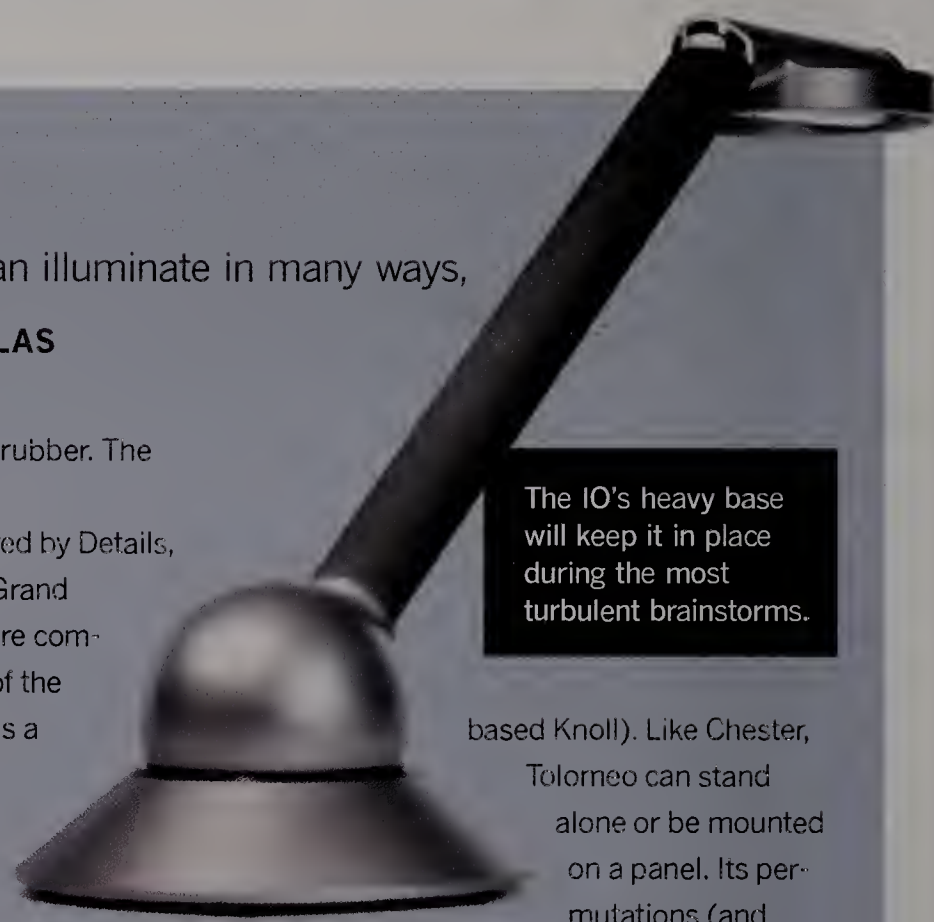
UNTIL TECHNOLOGY PROVIDES us with automatic lighting—blink your eyes and your brain chip brightens the lights—we’re stuck with Mr. Edison’s invention. Poor lighting is consistently ranked as a crucial factor in workplace dissatisfaction, according to numerous studies. Unfortunately there’s no one-size-fits-all solution to lighting problems. You can adjust task lighting to suit personal needs and requirements, but too often it’s both hideous and flimsy. Good-looking lamps that won’t topple in the wake of sweeping gestures are not a dime a dozen.

A personal favorite is the IO by Venezuelan designer Pablo Pardo, who works out of San Francisco. IO is available through his website (www.pablodesigns.com) and also through Haworth, a Holland, Mich., office furniture and equipment supplier. With a heavy round base about 7 inches in diameter and a silver lamp head on a telescoping arm that extends from 20 to 26 inches, IO doesn’t clutter the desktop. Pardo sheathes the arm in gray, graphite, navy,

rust, green or ivory silicon rubber. The lamp sells for \$250.

The Chester, manufactured by Details, a wholly owned partner of Grand Rapids, Mich., office furniture company Steelcase, has many of the same advantages. Chester is a good-looking, no-nonsense black desk lamp with a very heavy base that can also be mounted on a wall or panel to avoid taking up desktop space. Chester’s shade can tilt 240 degrees and has a prismatic lens to diffuse light and minimize glare. The lamp runs on a 13-watt fluorescent bulb and lists for \$294.

Tolomeo, designed by Michele De Lucchi and Giancarlo Fassina, looks as new and fresh as the day the Italians swept it off the drawing board in the 1980s. Manufactured by Artemide of Italy, it’s sold in the United States by several companies, including KnollExtra (a division of East Greenville, Pa.-



The IO’s heavy base will keep it in place during the most turbulent brainstorm.

based Knoll). Like Chester, Tolomeo can stand alone or be mounted on a panel. Its permutations (and

available colors) seem endless: It’s available as a fluorescent or incandescent lamp; it can be clamped on a desk, fitted into an 8-inch or 9-inch base, or put on a shorter arm for confined spaces, among other choices. The standard free-standing lamp lists at \$315 (which includes the 9-inch base)—however, list prices are open to negotiation depending on quantity and style ordered.

Elizabeth Douglas writes about design from her clean, well-lit office in Rockport, Mass.

Atlas Must Have Been A CIO!



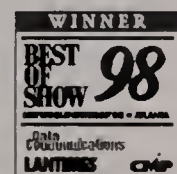
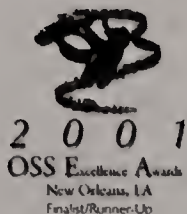
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Opinion

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CIO Confidential

Only the Names Have Been Changed

Phoning It In

BY ANONYMOUS

A FRIEND SENT ME an article he'd clipped from the Jan. 11 *Christian Science Monitor*, something about Stanley Kubrick's movie *2001: A Space Odyssey* and how it still resonates 33 years later. Spare me. A tiny article on the back of the clipping, however, did catch my eye. It told of a 25 watt lightbulb that had been burning continuously for the past 70 years in the restroom of an Ipswich, England, electrical shop.

The story isn't so remarkable because of this particular, perversely persistent lightbulb but because this particular bit of technology made 70 years ago is still compatible with 21st century systems. It's a reminder that things in their quintessential form—be they technology, processes or even ideas—if left



unmolested, can and do last a very long time. And furthermore, despite the hype, real, honest-to-God, life-altering, bell-ringing change has actually been decelerating when viewed over a period of, say 100 to 120 years. The fact is, the gadgets that fill our homes and hang from our belts are merely the sheen of technology, and our boasts of rapid and miraculous change are actually little more than the narcissism of small differences.

I happen to live near one of the epicenters of the high-tech

ILLUSTRATION BY LARRY GOODE

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scramble, or at least what's left of it. The city is, at once, awash in money and suffering a nearly complete breakdown of infrastructure and services under the crush of immigration by huddled masses in Range Rovers. The newcomers crowd into prairie mansion ghettos in ever widening circles around a commercial hub. Consequently, the traffic situation between 5:30 a.m. and 10 p.m. is a disaster, and there are currently no new major roadways under construction to relieve the problem.

The city council, recently back in session after a two week sabbatical presumably spent hugging trees and rereading Mao's *Little Red Book*, has jumped all over this issue by proposing

Today, the person in the next cubicle is your neighbor and the company is the closest thing to a community that most of us will ever know.

an ordinance that would require companies of a certain size and type to have at least 10 percent of their workforce telecommuting by the end of 2001. It has even been suggested that the number should rise to 25 percent by the end of 2003. These city councilors are not as dumb as they look. Why engage the problem head-on when you can lay it off on the private sector, the productivity and profitability of which is not your concern?

It's not that telecommuting isn't a superficially popular notion. It's difficult to find a manager, particularly those having an impossible time recruiting, to admit publicly to his desire to rein in this nontrend, especially in the light of all the excitement fabricated by media and marketing organizations.

Surveys estimating the number of telecommuters out there vary widely (5 percent to 20 percent), depending on who's asking and why. The higher percentages tend to include any workers who access e-mail at home, and even the lower percentages include job descriptions like regional sales managers and others who spend much of their time traveling or working in places without headquarters or regional offices. One survey I've heard about suggests that the number may even be shrinking because a growing number of workers say they'd rather be in the office than at home—and they'd rather have their managers and coworkers close at hand, as well. There are some very good and anthropologically significant reasons why this might be happening that are worth examining before we start handicapping our organizations.

It seems pretty obvious to me that telecommuting, at least in its current incarnation (and in light of slightly worsening unemployment numbers), will continue to sputter along for

the foreseeable future, but I have to admit that my personal biases may be clouding my otherwise flawless reasoning. As hard as I try, I can't think about telecommuting without picturing what it would be like if I were forced to work from home. The picture ain't pretty. First, with a fully stocked refrigerator within easy reach and no self-consciousness about eating at my desk, I'm pretty sure my weight would go to hell in no time. After a while my suits would stop fitting, I'd probably quit shaving and getting regular haircuts, eventually developing a striking resemblance to Lone Gunman Melvin Frohike.

Then there's the whole "emotional well-being" thing. The most significant difference between an extrovert and an introvert like me is that an extrovert gathers energy interacting with people while an introvert expends it. What is common to both, though, is that an inadequate amount of interaction can have an impact on all kinds of things, including creativity, and even lead to depression (a dead certainty in my case). Depression, like fatigue, leaves me thin-skinned, distracted and angry. When asked by reporters, the landlord described the portly systems analyst as a good tenant, quiet, who mostly kept to himself.

But personal biases aside, there does seem to be a palpable backlash out there against teleworking, primarily because of the corrosive effect it's having on productivity, team spirit and sense of corporate culture.

A company's culture, good, bad or indifferent, is at the heart of the social contract it keeps with its employees and is a key determinate of its competitiveness and profitability. According to a report in the *SAM Advanced Management Journal* in the fall of 1999, significant percentages of disparate telecommuters may actually sabotage corporate culture. Telecommuters, according to the journal, are, in many ways, very different from office workers.

A company's culture, good, bad or indifferent, is at the heart of the social contract it keeps with its employees and is a key determinate of its competitiveness and profitability. According to a report in the *SAM Advanced Management Journal* in the fall of 1999, significant percentages of disparate telecommuters may actually sabotage corporate culture. Telecommuters, according to the journal, are, in many ways, very different from office workers.

No Kidding

Laugh if you will, but how exactly do we, as managers, reinforce and maintain the basic norms, beliefs and values of our particular cultures with no water coolers to gather around or lunchrooms to meet in? Your corporate culture is communicated, strengthened, modified, added to and reinforced through informal discussions, stories, rituals and your company's own special version of acronyms and corpspeak. Geographic dispersion and disembodied work teams are not formulas for strengthening esprit de corps. Not to mention the whole issue of the real-time, fast-paced, in-your-face collaboration needed to take one person's half-baked idea and turn it into something an entire team can contribute to and get behind.

And then there's the whole issue of our deep-seated need for

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The 2001 CIO 100 Awards will recognize companies that have demonstrated innovation in a number of areas: by creating new products and services that offer potentially significant benefits in the marketplace; by markedly refining, redefining and improving relationships with outside partners or customers; or by creating and refining internal processes that enable them to stay successful in the marketplace or to take the company in a new direction.

The Symposium program explores innovation as the key to future change, growth and success. And who better to moderate our discussions and talk to us about “Innovation in an Age of Creative Destruction” than Paul Saffo, Director of the Institute for the Future. Paul believes that technology

doesn't drive change — it merely enables change. It creates new options and opportunities that we choose to exploit. To him, it is our response to technology that drives innovation and change.

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GARY D. SLOAN,
VP INFORMATION SERVICES,
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Joining Paul on the main stage will be Geoffrey Moore, Danny Hillis and John Seely Brown. At last year's Symposium, Geoff shared some of the material that culminated in his book, *Living on the Fault Line*. He returns this year to discuss what lessons he's learned as a

result of his initial engagements with *Fortune* 2000 companies. Danny Hillis, co-founder of Applied Minds and former Vice President and Disney Fellow of the Walt Disney Company, is uniquely qualified to address “Creativity and Technology.” And nothing less than “Transforming the Corporate Landscape” is the topic of choice for scientist-artist-philosopher John Seely Brown, Chief Scientist, Xerox Corporation.

Editor in Chief of *CIO* Magazine Abbie Lundberg and other senior editors will again be on hand to lead the Executive Mindshare Sessions, small group discussions for participants to share experiences and find solutions on key issues.

Dust off the golf clubs and the tuxedo or gown—you'll need both (although not at the same time!) to take

P R E S E N T E R S



Paul Saffo, Moderator
*Director and
Roy Amara Fellow
Institute for the Future*



Geoffrey Moore
*Founder and President
The Chasm Group*



John Seely Brown
*Chief Scientist
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advantage of the great networking opportunities we offer. Sunday we host a golf tournament at the newly redesigned championship Riverwalk Golf Course. Tuesday's black tie bash pays tribute to this year's CIO 100 Award Honorees during a special reception and dinner. Meet more of your

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community. Many of us live in housing developments that aren't anything like the neighborhoods or communities that our parents and grandparents were accustomed to. Today, almost every family has two breadwinners and there's never anybody home. The parents rush to pick up dinner in a bag, throw the kids in the car and head off to the baseball game or the soccer tournament that lasts all weekend in another city. Today you can live in your house for 10 years and never meet the people next door. This is neither good nor bad, it's just the way it is.

But communities haven't disappeared; they've relocated. Today, the person in the next cubicle is your neighbor and the company is the closest thing to a community that most of us will ever know. This community, with its sense of belonging and common purpose, is at the heart of what drives the most excellent IT organizations in America. It also makes it a lot easier to get up in the morning. Can an organization be successful without a sense of community? No, it can't.

And yet, the dabbling goes on. In one of the weirdest twists yet to this misbegotten social experiment, Merrill Lynch now staffs what's called a "corporate hotel" in the New Jersey suburbs where certain employees can book a cubicle through the intranet whenever they need an office. The theory is that their

telework centers may boost productivity, allowing employees to evade the distractions of dirty laundry and the TV at home—as well as water-cooler chitchat at the office. Here's an idea that combines all of the disadvantages of telecommuting with all of the expense and inconvenience of maintaining office space. Who dreams up this stuff?

It's hard to say at this point what my city council might do. I hope they consider the impact that such a drastic move is likely to have on those of us who pay the bills.

I also hope no one decides to take that lightbulb in England apart to figure out why it's still working. Given its age, just unscrewing it would probably break the filament and its replacement will certainly be short-lived by comparison. It should be enough to say that the bulb is the product of an uncompromised design joined with flawless materials and the highest level of craftsmanship in manufacture.

Execution like this happens, sometimes, but it can't be phoned in. **CIO**

Do you think telecommuting is bad for business? Let Anonymous know at confidential@cio.com. Anonymous has been a CIO at household-name companies in various industries for more than 12 years.

Coming in CIO

Look for These Articles in Future Issues

The CIO As VC

CIOs are being asked increasingly to play the role of venture capitalists, advising their companies on whether to invest in or acquire new companies. Learn what venture capitalism is, how it's done and how to judge a sound business investment.

Lead or Lose

The leadership requirements of the CIO position are becoming more demanding. As more CIOs become involved with corporate strategy, the scope of their job has broadened. Now they need to lead more than their IT staff; they also need to lead other executives to a sound understanding of how technology should be used in companies. CEOs who really grasp the importance of IT to their fundamental strategy and operations are still rare. CIOs are best placed to lead other executives to new busi-

ness strategies based on IT. Not only that, but this high-level leadership is now part of many CIOs' jobs; if they don't do it, no one else can.

Computer Cops

It's no secret that the private sector looks at public sector law enforcement with a skeptical eye when it comes to network security. A recent FBI report states only 32 percent of companies that had been attacked by hackers reported the incident to the authorities. The FBI complains to Congress that it can't keep on top of the few incidents that private companies do report. What's more, laws are so new and unclear that companies can't always fall back on statutes to protect them. Yet sometimes it makes sense to partner with the government. While there's certainly a limit to what law enforcement can actually do, such partnerships aren't all bad.

Net Nuptials

The bridal registry space is going high-tech. At Web portals like Weddingchannel.com you can do everything from registering online to shopping for gifts to finding a ring, dress, tux or honeymoon spot. And you've got in-store features like scanner guns that zap a gift right into your registry. Smart retailers are taking advantage of these new technologies to make an important sector more profitable. Read about the companies that have said "I will" and the ones that will be left standing at the alter.

PC or Not PC?

Everyone is saying PCs are passé, but are they? PCs are still the center of business end user computing experience, and though PDAs and wireless devices are gaining wider acceptance, they're essentially desktop extensions, not replacements. Before you throw your desktop strategies in the trash bin, check out CIO's exclusive survey. Our predictions for PCs may surprise you.

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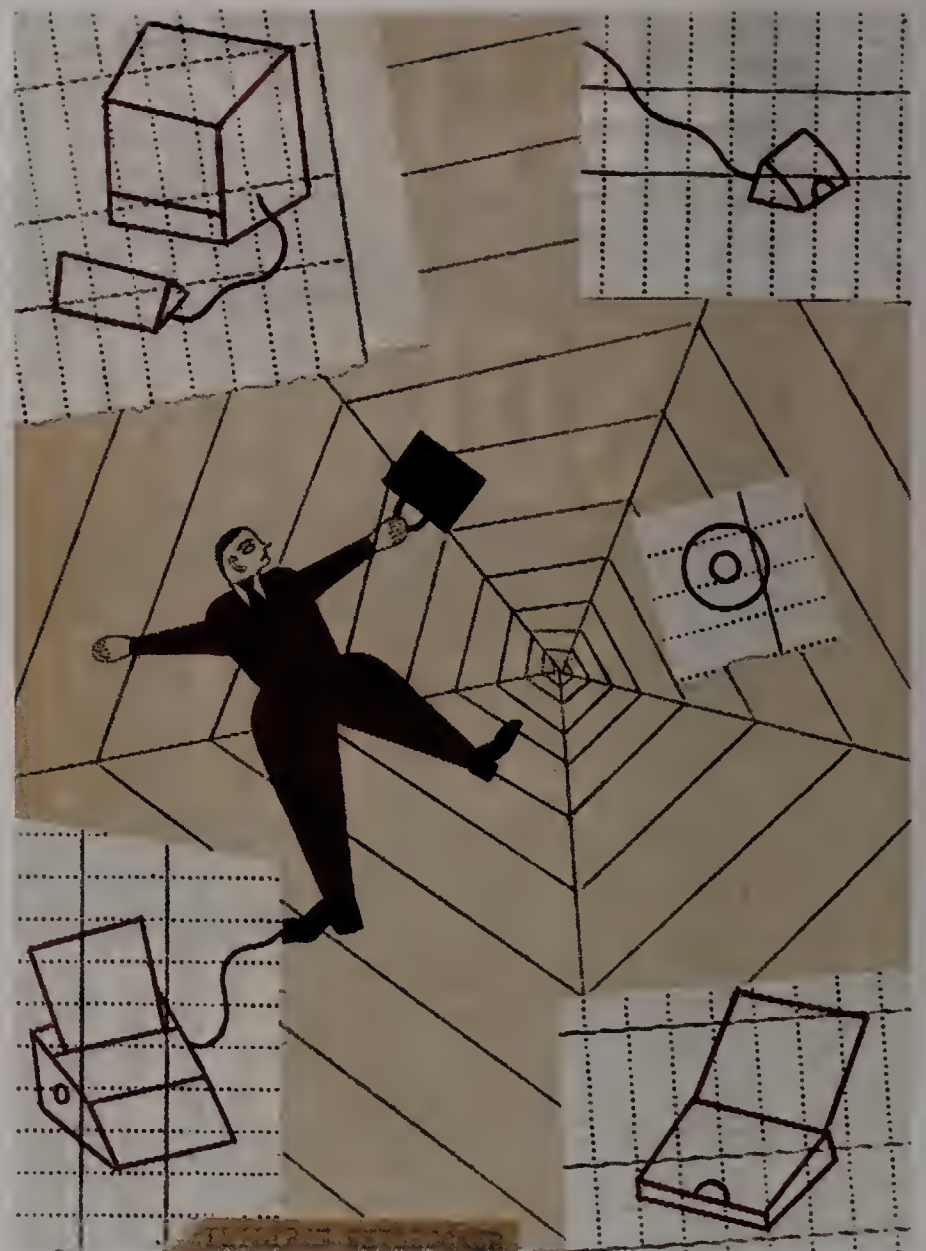
A Modest Proposal

BY DAVID L. RUSSELL

I KNOW I'M SHOWING my age, but I distinctly remember growing up with the belief that American workers of my generation (yes, I'm a baby boomer) would be working only four eight-hour days per week by the time we joined the workforce. My father was a senior design engineer in the R&D division of a Fortune 500 company, and he worked 36 hours per week. (He retired at age 58 in 1981 after spending most of his career with one company.) He also had a huge amount of vacation time—something like eight weeks a year. Now, 20 years later, I'm working as an IS executive. I don't enjoy the short workweek or ample vacation time that my father had, or that I grew up anticipating. On the contrary, I often spend 45 to 50 hours at work and at least another 10 hours per week in bumper-to-bumper traffic getting to and from my office.

The Myth of Productivity

As I remember, new technologies and better business methods were supposed to make us more productive. The expectation was that the increased productivity gained by computerization, new process methodologies and better corporate organi-

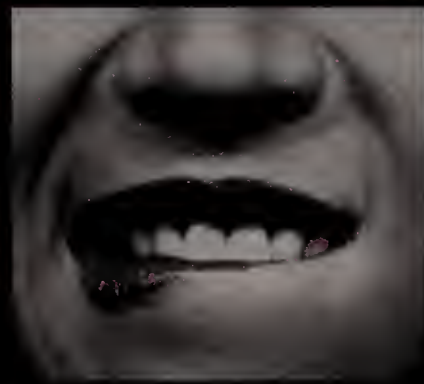


zational models would allow us shorter workweeks. Well, it didn't happen! I recently discussed this unfulfilled promise with a fellow executive, and he mentioned that the shorter workweek didn't happen for our generation because we now have PCs. He may be right.

PCs have raised the bar on the type, amount and quality of the output we can manage. Executives used to need administrative assistants to produce letters or memorandums. Today, we create and distribute our own correspondence without any support. We work with our own spreadsheets with little help from the accountants. We develop our own presentation materials, and we handle our own messaging via e-mail. Curiously, the colorful, capable PC has actually added to our individual workloads and made us forget what the promise of a better life meant.

On a larger scale, what else has happened to kill the golden

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lifestyle those in my generation were planning to enjoy? Having endured 26 years so far in IT, four years in the Navy and five years in college getting my degree in aerospace engineering, I have the right to know why I'm not worthy of having more free time without diminished fortune. I suspect that others of my generation want to know too. We've been told various plausible theories to explain why we've been deprived.

If we don't log 50-hour workweeks, we risk showing that we aren't really interested in the company or its success. Working anything less than 40 hours per week is something we should feel guilty about.

The list includes the emergence of the world economy, loss of our manufacturing base, our own personal greed, the legacy of driven immigrants, the post-depression era and the focus on quality.

High Expectations

As I see it, the most powerful reason for this changing circumstance is our collective work culture in America as enforced by the corporate institutions. As the generation that is nearly in control of the Fortune 500 corporations today, we are all held captive by what we believe corporations expect of us. If we don't log 50-hour workweeks, we risk showing

that we aren't really interested in the company or its success. Working anything less than 40 hours per week is something we should feel guilty about. We also feel compelled to mandate that our employees share this same work ethic.

I have an alternate theory. We can have the 32-hour workweek if we all decide to change at the same time. Our companies would sell the same amount of products and services as they do today, and profits would remain constant.

A New Work Ethic

I propose that starting on May Day 2001, we celebrate our collective American success. The managers of Fortune 500 corporations should announce to their permanent workers

that the standard workweek will be cut to four eight-hour days. Employees will receive no change in the compensation they receive.

If we have the vision to take this collective step toward a revolution of more free time, we can change our culture in a way that's fitting for the true start of the new millennium. The promise to my generation will be fulfilled for the remainder of our lives and for the lives our children. What a gift this would be to America. **CIO**

David L. Russell is the director of IS for EIS, a distributor of electronic materials based in Atlanta.

Raising the Dead

BY JOHN FONTANA

THESE ARE DARK DAYS for B2Cs—the label itself is almost a mark of doom. Many B2C companies have repositioned themselves—some becoming B2Bs, others transitioning to ASP models and still others associating themselves with infrastructure plays and enabling technologies.

Some companies have moved through four or five models, all

without finding an enduring value proposition, paying customers or growing profits. These are the lucky ones. Many more B2Cs did not have the cash or the talent to reinvent themselves, and now are locked on a dead-end course. They're stuck with a stale, first generation website, they rely on cutting prices to attract customers and advertising to drive profit margins, and they are usually lost in a sea of undifferentiated competitors. As such, they have almost no hope of reengaging increasingly sophisticated customers and newly skeptical VCs. Before the brick-and-mortar companies get too smug, their situation is the same in many regards: How many CIOs and VPs of e-business have to troop into the CEO's office to explain where the money went and when "this Net thing" will pay off?

Still Golden

And yet, is everything really that bad? Or is this situation largely

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a self-inflicted wound, begot by a failure to innovate fast enough to keep pace with the market and compounded by demoralized—and in many cases inexperienced and naive—leadership? The fundamental opportunity that led VCs and brick-and-mortar companies to fund so many pet, women's golf, furniture and other B2C sites still exists, and should lead to real businesses in the future, even if many of the current participants don't live to see tomorrow.

Widely dispersed groups of customers with money and specific interests still exist, and they have increasing access to the Internet. Suppliers can still profit by connecting with these customers and fulfilling their needs.

The fundamental opportunity that led VCs and brick-and-mortar companies to fund so many B2C sites still exists and should lead to real businesses in the future, even if many of the current participants don't live to see tomorrow.

The basic reasons for Web-based commerce still apply. Convenience and time savings are still major issues for most families, far outweighing a few dollars in shipping fees. Information still adds value to even commoditized products. Web costs can still be substantially lower than brick-and-mortar costs for appropriate services and products. Bundling, cross-selling and other methods based on superior knowledge of customer behavior are still easier on the Web than they are offline.

Back to Basics

For the management of B2C businesses and their investors, the keys to survival and prosperity are returning to sound strategic basics, smart customer targeting, a solid value proposition, great execution and wise capital investment. Not surprisingly, the first step on the road to profitability and survival is a rapid, objective evaluation of the fundamentals of cost position, customer needs, competitors, capabilities to execute and management expertise. Driven by experienced e-business strategists and operating executives, this evaluation must uncover worthwhile customers, a clear path to profitability, nonadvantaged competitors and the capability to change in an effort to exploit an opening in the market. Most important, the evaluation must identify potential investors who care enough, or believe enough, to provide funding. This applies equally to brick-and-click operations where many

boards are skeptical of management's "e-promises."

The second step is standard VC/new economy fare: a business plan that can stand up to the greater degree of scrutiny a company gets the second time around whether from a board, a first-round investor or a vulture. A beleaguered dotcom needs a rock-solid implementation plan, bankable financials and a management team that has learned in the market or been bolstered by turnaround managers.

The final step—funding and relaunch—should be almost anticlimactic. Hiring new members of the management team, specifying and acquiring new technologies, and executing the plan within the marketplace must become part of normal, ongoing dotcom operations.

The beneficiaries of the potential that exists within these businesses—whether current participants or vulture investors—will depend on the skills of management and the willingness of earlier round investors to step forward with new funds to protect their positions.

Bargain Hunting

We have already seen the first wave of bargain basement transactions. Some have been by strategic buyers, some by vulture or turnaround investment funds and some by the increasing numbers of VC funds participating in "down rounds." Expect to see dedicated pools of private equity focused on the purchase and rehabilitation of dead and stalled dotcoms and brick-and-click operations. Acquisition, followed by a bust up, merger, restructuring or turnaround will likely be the norm for these groups, just as the LBO funds worked on brick-and-mortar companies in the 1970s and 1980s.

For the management of dotcoms and brick-and-clicks, the challenge is similar to what it was at the beginning of the dotcom boom: Who can innovate to recapture customers' business, and who can execute to capitalize on the real business opportunities that exist? The hype has been shaken out of the capital markets with a vengeance. Now the rewards will go to the management teams that can deliver sustained results. **CIO**

Do you have an opinion you would like to express? Let Senior Editor Megan Santosus know at santosus@cio.com.

John Fontana is president and COO of eRunway, a Westborough, Mass.-based software developer.

August 28, 1963 Martin Luther King, Jr.



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Break the Code



Gary J. Beach

ACCESS CODES and personal identification numbers—or PINs—are becoming a major pain. Try to get through a day without using one. Sadly, it is nearly impossible. You need one PIN to get cash from the ATM, another to make long-distance telephone calls when you are away from the office and yet another to log on to your company's computer network.

With scores of numbers and codes to remember, many of my friends have resorted to using one code or PIN, such as a birth date, anniversary or pet's name. This, however, is throwing digital caution to the wind. If you use one code for everything, security pros warn, you jeopardize them all. If someone steals your PIN to your favorite online service they could potentially also get into your bank account. There is no end to the damage he or she could do.

To protect ourselves, experts advise using multiple codes of totally random numbers, letters or punctuation marks—and they advise us to change these codes several times a year.

Life is already too complicated for all these numbers. I have codes recorded in my digital organizer, my daybook and the really important ones buried deep inside my wallet.

Maybe my friends who use one code are on to something, though. What if you could have one highly secure code or PIN

that would be your digital persona for all your code-required tasks? Would that interest you?

Well, it doesn't interest technology researchers, who are strongly against such an idea. They say such an approach offers too much opportunity to build databases that would link enormous amounts of personal information with the PIN as the digital conduit.

But others are moving ahead. One group in California is calling for the issuance of digital smart cards to initially be used for commercial transactions and e-government activities like voting. And one of the world's largest credit card companies has tackled the problem from the polar opposite end of "one PIN per person" by assigning "use once and then throw away" codes for purchases made over the Internet. This seemingly wasteful approach underscores an important point: There are hundreds of billions of unique numbers available.

In the coming decade, more daily activities will become digitized, resulting in more access codes and PINS to remember.

If people like you and I want one PIN or code for our digital identity, technologists will have to figure out a way to make it happen—and to keep those codes safe.

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For further sales information, visit

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CIO is published in the United States as well as in:

Australia, CIO Australia

P.O. Box 295, St. Leonards, NSW 2065, Australia

61-2-9439-5133; www.idg.com.au

Canada, CIO Canada (monthly)

CIO Enterprise Canada (biweekly)

Laurentian Technomedia Inc., 55 Town Centre Ct.

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416-290-0240; www.lti.on.ca/cio

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492 Old Connecticut Path, P.O. Box 9208, Framingham, Massachusetts 01701-9208, 508 872-0080.

CIO (ISSN 0894-9301) is published semi-monthly; and as a combined issue December 15/January 1 by CXO Media Inc., 492 Old Connecticut Path, P.O. Box 9208, Framingham, Massachusetts 01701-9208. Periodicals postage paid at Framingham, Mass., and at additional mailing offices. Canada Publications Mail Agreement Number 1902075. CANADIAN POSTMASTER: Please return undeliverable copy to P.O. Box 1632, Windsor, ON N9A 7C9.

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Change of Address: Please fax a copy of current subscription label along with new address to 508 879-7899. Allow four to six weeks for change to take effect.

Postmaster: Send change of address to *CIO*, P.O. Box 489, Northbrook, Illinois 60065-9816. Printed in the U.S.A.

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Tools that Ruled

Mercury Rising

QUANTIFYING natural phenomena was all the rage among early 17th century scientists. As they grappled with measuring heat and cold, several came up with the thermoscope. This thin-necked flask was warmed between the hands and inverted over a dish of water; the water level rose in the flask in relation to the temperature of the air inside it.

The bulb thermometer is a direct descendant of the thermoscope and is based on the principle that a liquid expands when heated. The liquid in the bulb, usually mercury, rises into a thin tube as it warms up. While this genre is the most popular, other types of thermometers, including electrical and bimetallic, have since been developed. Electrical ones measure the resistance of a material, such as nickel wire, and convert that

measurement into a temperature reading. Bimetallic thermometers, found in ovens and backyards, are made of two strips of different metals that are bonded together. The metals expand at different rates when heated, making the strip bend. The amount it bends is used to measure temperature.

German physicist Daniel Fahrenheit was the first to create a numerical scale for measuring temperatures that became standard. In 1714, Fahrenheit mixed snow and salt, stuck a thermometer in, noted how high the mercury rose and labeled that point zero.

Then he boiled mercury, stuck the thermometer in again and called that point 600. He marked off even spaces between the points, thus securing his place in history.

Swedish astronomer Anders Celsius created a more practical scale in 1742. He labeled the freezing and boiling points of water 100 degrees and zero degrees respectively. (The scale was later inverted so that zero became the freezing point.) Celsius is now the standard scale in the sciences and in most countries—generally those that embrace the metric system. —Sara Shay



PHOTO BY FURNALD/GRAY

Just because you're good at one thing doesn't mean you're good at everything.

 Shaquille O'Neal was virtually a unanimous selection for Most Valuable Player in the NBA. But the skills that make him dominant in his line of work don't ensure success in other endeavors.

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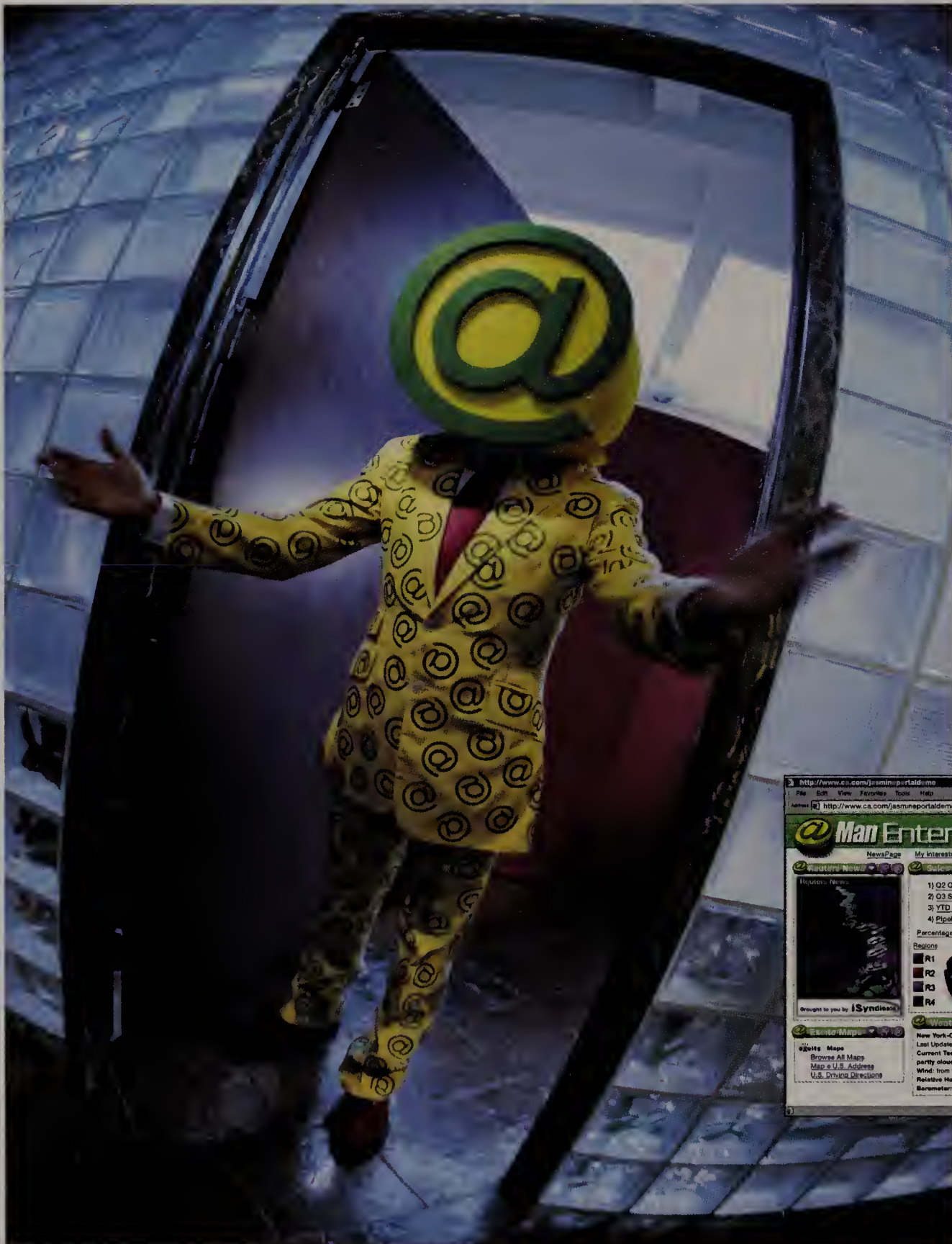
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Not Just Another Pretty Interface.



Introducing Jasmine® *ii* Portal. The eBusiness Workplace That Empowers Your Organization To Win At eSpeed.

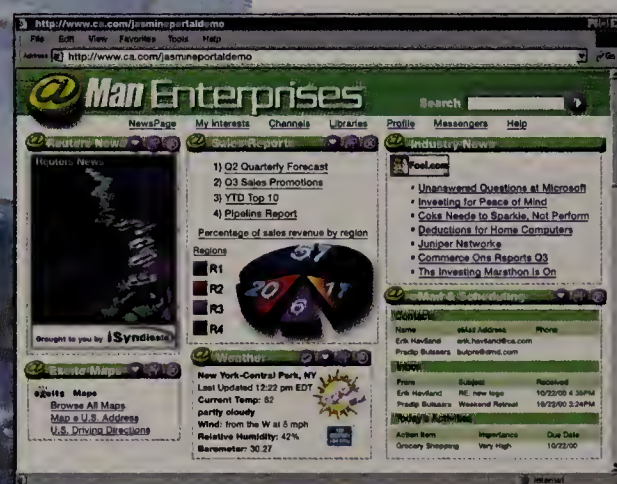
On the surface, most portals look and function the same. But one is dramatically different from all the rest — the Jasmine *ii* Portal. While some portals only let you customize their content, Jasmine *ii* Portal's **dynamic personalization** goes one step further. It intelligently finds information that other portals might not even consider delivering to users.

Jasmine *ii* Portal's **superior visualization** helps everybody work smarter. Users can dynamically interact with data rather than just viewing it. Prospects will be sold thanks to Jasmine *ii* Portal's 3-D imaging — it makes products come alive!

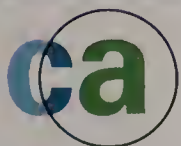
Another distinctive quality: **awesome integration** pulls information from every application and location — turning your eBusiness into one, realtime collaborative environment. And no other portal

vendor offers proven methodologies and services that help your organization map knowledge management initiatives to business processes.

New Jasmine *ii* Portal. It's living proof that beauty really is more than skin deep.



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